

Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

Reserve
1.941
V18M34

MTS-182

AUGUST 1971

4

MARKETING & TRANSPORTATION Situation

U. S. DEPT. OF AGRICULTURE
NATIONAL AGRICULTURAL LIBRARY
RECEIVED

SEP 7 1971

PROCUREMENT SECTION
CURRENT SERIAL RECORDS



MARKET FACTS

Item	Unit or base period	1970			1971	
		Year	2nd Qtr.	4th Qtr.	1st Qtr.	2nd Qtr.
Farm-Retail Price Spreads: 1/						
Retail cost	Dol.	1,225	1,227	1,214	1,218	1,244
Farm value	Dol.	480	484	448	466	477
Farm-retail spread	Dol.	745	743	766	752	767
Farmer's share of retail cost	Pct.	39	39	37	38	38
Retail Prices: 2/						
All goods and services (CPI)	1967=100	116.3	115.7	118.6	119.5	120.8
All food	1967=100	115.0	114.9	115.2	116.1	118.4
Food at home	1967=100	113.7	113.7	113.4	114.1	116.6
Food away from home	1967=100	119.9	119.3	122.4	123.9	125.3
Wholesale Prices: 2/						
Food 3/	1967=100	113.2	113.4	111.7	113.9	115.9
Cotton products	1967=100	105.6	105.1	106.4	107.5	109.8
Woolen products	1967=100	99.5	100.2	97.4	95.4	93.8
Agricultural Prices:						
Prices received by farmers	1967=100	110	110	107	110	112
Prices paid by farmers, interest, taxes and wage rates	1967=100	114	114	115	118	120
Prices of Marketing Inputs:						
Containers and packaging materials	1967=100	108	108	110	111	113
Fuel, power, and light	1967=100	108	105	115	118	119
Services 4/	1967=100	120	118	124	125	---
Hourly Earnings:						
Food marketing employees 5/	Dol.	3.03	3.01	3.10	3.19	---
Employees, private nonagricultural sector 2/	Dol.	3.23	3.20	3.29	3.35	---
Farmers' Marketings and Income:						
Physical volume of farm marketings	1967=100	104	84	134	94	84
Cash receipts from farm marketings 6/ ..	Bil. dol.	48.7	49.7	48.3	49.7	50.6
Farmers' realized net income 6/	Bil. dol.	15.8	16.6	14.5	14.9	15.3
Industrial Production: 7/						
Food manufacturers	1967=100	139.8	139.8	138.4	141.0	---
Textile mill products	1967=100	148.8	148.3	145.2	151.4	---
Apparel products	1967=100	141.7	139.2	138.6	139.3	---
Tobacco products	1967=100	121.6	121.2	122.5	124.6	---
Retail Sales: 8/						
Food stores	Mil. dol.	81,466	20,330	20,732	20,962	---
Eating and drinking places	Mil. dol.	27,872	6,990	7,119	6,959	---
Apparel stores	Mil. dol.	20,396	5,106	5,264	5,200	---
Consumers' Per Capita Income and Expenditures: 9/						
Disposable personal income	Dol.	3,358	3,353	3,410	3,500	3,584
Expenditures for goods and services ...	Dol.	3,007	3,001	3,037	3,125	3,192
Expenditures for food	Dol.	557	556	566	568	579
Expenditures for food as percentage of disposable income	Pct.	16.6	16.6	16.6	16.2	16.2

1/ For a market basket of farm foods. 2/ Dept. of Labor. 3/ Processed foods, eggs, and fresh and dried fruits and vegetables. 4/ Includes such items as rent, property insurance and maintenance, and telephone. 5/ Average hourly earnings of production workers in food processing, and nonsupervisory workers in whole-sale and retail food trades, calculated from Dept. of Labor data. 6/ Quarterly data seasonally adjusted at annual rates. 7/ Seasonally adjusted, Board of Governors of Federal Reserve System. 8/ Quarterly data seasonally adjusted, Dept. of Commerce. 9/ Seasonally adjusted annual rates, calculated from Dept. of Commerce data. Percentages have been calculated from total income and expenditure data.

MARKETING AND TRANSPORTATION SITUATION

CONTENTS

	<i>Page</i>
Summary	3
Farm Food Market Basket Statistics	4
The Bill for Marketing Farm Food Products	9
Cost of Packaging Materials for Farm Foods	17
Agriculture, Marketing, and the Environment— Problems and Research Needs	21
Recent Trends in Price Spreads for Beef and Pork	26
Selected New Publications	30
Quarterly Data for the Market Basket of Farm Foods	32

• • •

Approved by
The Outlook and Situation Board
and Summary released
August 3, 1971

Principal contributors
Henry Badger
Denis Dunham

Marketing Economics Division

Economic Research Service

U.S. Department of Agriculture
Washington, D.C. 20250

• • •

The Marketing and Transportation Situation is published
in February, May, August, and November.

SUMMARY

Marketing spreads for U.S. farm foods probably will increase further during the remainder of 1971, due to rising labor and other business costs. Returns to farmers should also strengthen in coming months but average about the same as last year. These prospects indicate a rise in retail store prices of food from U.S. farms, lifting the average for the year as a whole by around 3 percent above 1970.

Retail food prices pushed higher in the second quarter of this year, more than offsetting a slight decline in the fourth quarter of 1970. The retail cost of a market basket of foods produced on U.S. farms rose to an annual rate of \$1,244 in the second quarter, up 2.1 percent from the previous quarter. This was the largest quarterly increase in a year and a half. However, the retail cost averaged only 1.5 percent above a year earlier, reflecting the general easing of the rate of price increases during most of last year and the first quarter of this year.

Gross returns to farmers (farm value) for market basket foods averaged \$477 (annual rate) in the second quarter—up 2.3 percent from the first quarter. Higher returns to farmers for beef cattle, poultry, and fresh fruits and vegetables accounted for most of the increase. Even though gross returns increased, they were 1.5 percent below the second quarter a year earlier. The decrease from a year earlier resulted from sharply lower returns for hogs and eggs. Farm values increased for most other products in the market basket.

The marketing spread—the difference between the retail cost and farm value of the market basket—averaged \$767 in the second quarter, 2 percent more than in the preceding quarter. Widening marketing spreads accounted for almost three-fifths of the rise in the retail cost of market basket foods. Second quarter marketing spreads averaged 3.4 percent above a year earlier.

Farmers received an average of 38 cents of the dollar consumers spent for farm foods in the second quarter. This was the same as in the previous quarter, but 1 cent less than a year earlier.

The marketing bill—an estimate of the total cost of transporting, processing, and distributing farm food products—rose 8.3 percent to a total of \$68.5 billion in 1970. Labor costs, nearly half of the bill, rose over 9 percent reflecting a further rise in hourly earnings of employees and little gain in output per man hour. Rail and truck transportation costs rose 13 percent to \$5.2 billion. Before-tax profits that firms derived from marketing farm foods totaled \$4 billion, the same as in 1969. Although sales increased, profits as a percent of sales declined.

Farmers received \$33.1 billion for farm food products in 1970—3.1 percent more than 1969. This compares

with increases of 11 percent in 1969 and 6 percent in 1968. The farm value of food products represented about a third of the amount consumers spent for these foods in 1970, and 4.8 percent of disposable personal income.

FARM-FOOD MARKET BASKET STATISTICS

Retail Cost: The retail cost of the market basket of farm foods averaged \$1,244 (annual rate) in the second quarter of 1971—up 2.1 percent from the previous quarter (table 1). This was the largest increase since the fourth quarter of 1969 and pushed the retail cost of the market basket foods to a record level.

Retail costs increased for all product groups except eggs. Fresh fruits and vegetables accounted for more than half of the rise. Price increases were particularly sharp for apples, carrots, cucumbers, green peppers, potatoes, and tomatoes. In contrast, egg prices decreased about 10 percent.

Food costs in the first half of 1971 averaged moderately higher than year-earlier levels. In the second quarter, the retail cost of market basket foods averaged 1.5 percent higher. Among food groups, vegetable oil products and fresh fruits were up about 9 percent while bakery and cereal products, processed fruits and vegetables, and dairy products were up between 3 and 5 percent. In contrast, retail pork prices were down 14 percent and egg prices were 5 percent lower.

Consumers paid 25 percent more for market basket foods in the second quarter this year than 10 years ago (fig. 1 and table 2). This compares with a 35 percent increase in the Consumer Price Index for all goods and services consumers purchase.

Farm value: Farm value of foods in the market basket totaled \$477 (annual rate) in the second quarter this year, up 2.3 percent from the first quarter. Higher returns to farmers for meat animals (beef cattle), poultry, and fresh fruits and vegetables accounted for most of the increase. In contrast, returns for eggs dropped sharply.

Compared with a year earlier, returns to farmers for market basket foods averaged 1½ percent lower in the second quarter, mainly reflecting a 29 percent drop in hog prices and 7 percent lower prices for eggs. Some product groups in the market basket were substantially higher. Returns for fresh fruits were up 28 percent, fats

Consumers spent \$101.6 billion for domestic farm foods in 1970—6.6 percent more than in 1969. The increase mainly reflected higher food prices; purchase volume increased slightly.

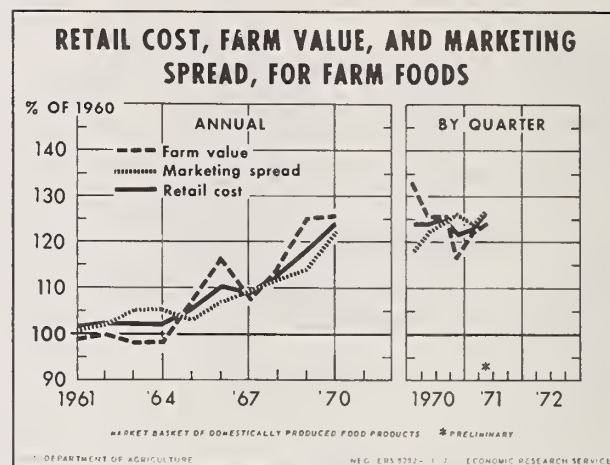


Figure 1

and oils 9 percent, and processed fruits and vegetables 6 percent.

Market basket farm value in the second quarter averaged 25 percent higher than in 1961, the same percentage increase as in the retail value.

Farm-Retail Spread: Marketing spreads accounted for almost 60 percent of the rise in the retail cost of market basket foods from the first to the second quarter of this year. The spread between the retail cost and the farm value was \$767 in the second quarter—an increase of 2 percent from the first quarter. Marketing spreads widened for all market basket groups except eggs. Increases were largest for fresh fruits and vegetables and vegetable-oil products. Spreads for the meat products group changed little.

Compared with a year earlier, second quarter marketing spreads were 3.4 percent wider. Spreads were substantially wider for most groups except poultry and eggs. Increases were greatest for fats and oils products (9 percent) and bakery and cereal products (5 percent). Widening marketing spreads offset the decrease in farm value and accounted for all of the increase in retail costs.

The farm-retail spread rose sharply throughout 1970 but decreased slightly in the first quarter this year. However, in the second quarter the spread exceeded the previous record level of the fourth quarter of 1970. The marketing spread in the first half of 1971 averaged about 4 percent wider than a year earlier.

The second quarter spread averaged about 25 percent greater than in 1961.

Farmer's Share: In the second quarter this year, farmers received an average of 38 cents of the dollar consumers spent for domestic farm foods in retail food

¹ The market basket contains the average quantities of domestic, farm-originated food products purchased annually per household in 1960 and 1961 by wage-earners and clerical worker families and single workers living alone. Its retail cost is calculated from retail prices published by the Bureau of Labor Statistics. The retail cost of the market basket foods is less than the cost of all foods bought per household, since it does not include cost of meals in eating places, imported foods, seafoods or other foods not of farm origin. The farm value is the gross return to farmers for the farm products equivalent to foods in the market basket. The farm-retail spread—difference between the retail cost and farm value—is an estimate of the total gross margin received by marketing firms for assembling, processing, transporting, and distributing the products in the market basket.

Table 1.--The market basket of farm foods by product groups: Retail cost, farm value and farm-retail spread, April-June 1971, January-March 1971 and April-June 1970

Items	April - June 1971	January - March 1971	April - June 1970	Change: April-June 1971 from			
				January-March 1971		April-June 1970	
	Dol.	Dol.	Dol.	Dol.	Pct.	Dol.	Pct.
Retail cost ^{1/}							
Market basket	1,244.44	1,218.32	1,226.56	26.12	2.1	17.88	1.5
Meat products	367.68	361.50	379.46	6.18	1.7	-11.78	-3.1
Dairy products	224.37	222.52	217.30	1.85	.8	7.07	3.3
Poultry	50.05	48.92	50.44	1.13	2.3	-.39	-.8
Eggs	36.96	40.85	38.98	-3.89	-9.5	-2.02	-5.2
Bakery and cereal products	191.44	189.04	182.55	2.40	1.3	8.89	4.9
Fresh fruits	53.91	48.89	49.75	5.02	10.3	4.16	8.4
Fresh vegetables ..	88.37	77.84	87.62	10.53	13.5	.75	.9
Processed fruits and vegetables ...	131.19	129.52	126.13	1.67	1.3	5.06	4.0
Fats and oils	44.13	43.43	40.41	.70	1.6	3.72	9.2
Miscellaneous products	56.34	55.81	53.92	.53	.9	2.42	4.5
Farm value ^{2/}							
Market basket	476.77	465.85	484.19	10.92	2.3	-7.42	-1.5
Meat products	193.32	187.17	210.74	6.15	3.3	-17.42	-8.3
Dairy products	106.96	107.04	104.07	-.08	-.1	2.89	2.8
Poultry	23.80	22.67	23.24	1.13	5.0	.56	2.4
Eggs	20.91	23.73	22.40	-2.82	-11.9	-1.49	-6.7
Bakery and cereal products	36.46	36.12	35.40	.34	.9	1.06	3.0
Fresh fruits	16.95	14.23	13.25	2.72	19.1	3.70	27.9
Fresh vegetables ..	29.42	26.45	28.81	2.97	11.2	.61	2.1
Processed fruits and vegetables ...	25.49	24.79	24.13	.70	2.8	1.36	5.6
Fats and oils	13.44	13.64	12.31	-.20	-1.5	1.13	9.2
Miscellaneous products	10.02	10.01	9.84	.01	.1	.18	1.8
Farm-retail spread							
Market basket	767.67	752.47	742.37	15.20	2.0	25.30	3.4
Meat products	174.36	174.33	168.72	.03	3/	5.64	3.3
Dairy products	117.41	115.48	113.23	1.93	1.7	4.18	3.7
Poultry	26.25	26.25	27.20	0	0	-.95	-3.5
Eggs	16.05	17.12	16.58	-1.07	-6.2	-.53	-3.2
Bakery and cereal products	154.98	152.92	147.15	2.06	1.3	7.83	5.3
Fresh fruits	36.96	34.66	36.50	2.30	6.6	.46	1.3
Fresh vegetables ..	58.95	51.39	58.81	7.56	14.7	.14	.2
Processed fruits and vegetables ...	105.70	104.73	102.00	.97	.9	3.70	3.6
Fats and oils	30.69	29.79	28.10	.90	3.0	2.59	9.2
Miscellaneous products	46.32	45.80	44.08	.52	1.1	2.24	5.1

^{1/} Retail cost of average quantities purchased annually per household in 1960-61 by urban wage earner and clerical-worker families and single workers living alone, calculated from retail prices collected by the Bureau of Labor Statistics.

^{2/} Payment to farmer for equivalent quantities of farm products minus imputed value of byproducts obtained in processing.

^{3/} Less than 0.05 percent.

Table 2.--The market basket of farm foods: Retail cost, farm value, farm-retail spread, and farmer's share of retail cost, average 1947-49 and 1957-59, annual 1961-70, monthly 1970-71 1/

Year and month	Retail cost	Farm value	Farm-retail spread	Farmer's share
	Dollars	Dollars	Dollars	Percent
Average:				
1947-49	890	441	449	50
1957-59	983	388	595	39
1961	997	380	617	38
1962	1,006	384	622	38
1963	1,013	374	639	37
1964	1,014	374	640	37
1965	1,038	408	630	39
1966	1,095	443	652	40
1967	1,080	414	666	38
1968	1,118	435	683	39
1969	1,174	478	696	41
1970 <u>2/</u>	1,225	480	745	39
1970 <u>3/</u>				
January	1,223	502	721	41
February	1,229	509	720	41
March	1,224	507	717	41
April	1,226	488	738	40
May	1,226	485	741	40
June	1,228	480	748	39
July	1,236	497	739	40
August	1,236	475	761	38
September	1,231	471	760	38
October	1,221	459	762	38
November	1,208	447	761	37
December	1,213	437	776	36
1971 <u>2/ 3/</u>				
January	1,212	449	763	37
February	1,215	472	743	39
March	1,228	476	752	39
April	1,239	476	763	38
May	1,243	473	770	38
June	1,251	481	770	38
July				
August				
September				
October				
November				
December				

1/ Retail cost of average quantities purchased annually per household in 1960-61 by urban wage-earner and clerical-worker families and single workers living alone, calculated from retail prices collected by the Bureau of Labor Statistics. Data for earlier years are published in Farm-Retail Spreads for Food Products 1947-64, ERS-226, April 1965. 2/ Preliminary. 3/ Annual rates.

stores. This was the same as in the previous quarter, but 1 cent less than a year earlier, reflecting both the decline in returns to farmers for food products and the increase in prices paid by consumers. During the past decade, the quarterly shares varied from 36 to 42 cents.

Outlook: Retail prices of foods from U.S. farms may continue to rise during the remainder of the year but at a slower rate than in the second quarter. However, prospects for tightening supplies of livestock and livestock products may result in little or no seasonal decline in the fall. Returns to farmers may also average slightly higher, but the farm value of the market basket foods for the year probably will be about the same as last year. Rising costs of labor and other inputs purchased by marketing firms will continue to pressure marketing margins in coming months, but the increase for the year should be considerably smaller than last year's 7 percent. If marketing spreads rise as expected, retail prices of market basket foods may average around 3 percent higher in 1971. This compares with a rise of about 4½ percent last year.

Commodity Highlights

Beef: With supplies of beef about the same as a year earlier, continued strong consumer demand in the second quarter of 1971 lifted beef prices at all levels from the first quarter. The retail price of Choice beef averaged a record 104.9 cents per pound in the second quarter—up 4.6 cents from the first quarter (table 3). The farm value increased 3.2 cents. The farm-retail spread widened by 1.4 cents, largely reflecting a 1.1 cent increase in the carcass-retail component. However, the carcass-retail spread averaged 1.5 cents below the same quarter a year earlier.

The farm-carcass spread, primarily the packer's margin, changed little from the first to second quarter. However, it averaged 2.2 cents higher than a year earlier.

Pork: Continued large supplies of hogs nudged prices for pork slightly lower at all market levels in the second quarter of 1971. Prices were down substantially from a year earlier. The composite retail price of pork cuts averaged 68.8 cents per pound in the second quarter—down 11.2 cents. (table 3). Returns to farmers for hogs (farm value) were down 12 cents to 29.9 cents. Because decreases at farm and retail almost coincided, the farm-retail spread widened by 0.8 cents to 38.9 cents. The increase resulted from wider farm-wholesale spreads (mainly the packer's margin). The wholesaler-retail spread (mainly the retailer's margin) decreased slightly. Commercial pork production in the second quarter was almost one-fifth greater than a year earlier.

Eggs: As production of eggs continued well above year-earlier levels, prices at both farm and retail levels declined sharply. The retail price for Grade A large eggs averaged 51.3 cents per dozen in the second quarter—down 5.4 cents from the first quarter, and 2.8 cents below a year earlier, (table 17, p. 32). Decreases at the farm level were not as great as at retail; therefore, the farm-retail spread was lower than both the first quarter and a year earlier.

Fresh vegetables: The retail cost of fresh vegetables continued to rise sharply in the second quarter this year, up 14 percent from the first quarter. Marketing margins increased 15 percent and accounted for almost three-fourths of the rise at retail. Reduced supplies caused by dry weather in several vegetable producing areas were associated with the larger than seasonal rise at the farm level. Increases in farm-retail spreads for several vegetables were as follows: green peppers, 82 percent; lettuce, 36 percent; and tomatoes, 27 percent (table 18 .p. 33).

Retail costs, farm values, and marketing spreads for fresh vegetables in the second quarter changed little from the relatively high levels of a year earlier.

MONTHLY SUPPLEMENT ON PRICE SPREADS

A 2-page monthly supplement to the *Marketing and Transportation Situation* entitled, "Price Spreads for Farm Foods", is available. The supplement reports monthly price spreads for the market basket of farm foods and selected individual products such as beef and pork. Requests to receive the supplement should be made to:

U.S. Department of Agriculture
Economic Research Service
Marketing Economics Division
500 12th Street, S.W.
Room 212
Washington, D.C. 20250

Table 3.--Beef, pork, and lamb: Retail price, carcass value, farm value, farm-retail spread, and farmer's share of retail price, annual 1968-70, quarterly 1970-71

Date	Retail price	Carcass	Gross: farm	Byproduct	Net	Farm-retail spread			Farmer's
	per pound	value	value	allowance	value	Carcass-	Farm-		share
	1/	2/	3/	4/	5/	Total	retail	Carcass	
	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Percent
Beef, Choice grade									
1968	86.6	63.1	60.5	3.8	56.7	29.9	23.5	6.4	65
1969	96.3	68.7	66.9	4.7	62.2	34.1	27.6	6.5	65
1970	98.7	68.3	66.3	4.7	61.6	37.1	30.4	6.7	62
1970									
Jan.-Mar. .	98.2	68.6	66.4	5.0	61.4	36.8	29.6	7.2	63
Apr.-June .	99.4	69.3	68.2	4.9	63.3	36.1	30.1	6.0	64
July-Sept. .	100.0	70.3	68.0	4.6	63.4	36.6	29.7	6.9	63
Oct.-Dec. .	97.4	64.9	62.4	4.5	57.9	39.5	32.5	7.0	59
1971									
Jan.-Mar. .	100.3	72.8	69.1	4.2	64.9	35.4	27.5	7.9	65
Apr.-June .	104.9	76.3	72.8	4.7	68.1	36.8	28.6	8.2	65
July-Sept. .									
Oct.-Dec. .									
Pork									
1968	67.4	51.7	36.7	2.2	34.5	32.9	15.7	17.2	51
1969	74.3	58.5	45.5	3.2	42.3	32.0	15.8	16.2	57
1970	78.0	58.7	42.9	3.4	39.5	38.5	19.3	19.2	51
1970									
Jan.-Mar. .	81.8	64.7	52.3	4.2	48.1	33.7	17.1	16.6	59
Apr.-June .	80.0	60.6	45.4	3.5	41.9	38.1	19.4	18.7	52
July-Sept. .	79.0	58.0	43.0	3.3	39.7	39.3	21.0	18.3	50
Oct.-Dec. .	71.3	51.5	30.8	2.4	28.4	42.9	19.8	23.1	40
1971									
Jan.-Mar. .	69.2	50.2	33.2	2.6	30.6	38.6	19.0	19.6	44
Apr.-June .	68.8	49.9	32.5	2.6	29.9	38.9	18.9	20.0	43
July-Sept. .									
Oct.-Dec. .									
Lamb, Choice grade									
1968	93.6	68.2	60.0	6.4	53.6	40.0	25.4	14.6	57
1969	102.2	74.8	66.9	7.6	59.3	42.9	27.4	15.5	58
1970	107.5	73.8	65.2	6.3	58.9	48.6	33.7	14.9	55
1970									
Jan.-Mar. .	106.7	73.6	68.1	8.0	60.1	46.6	33.1	13.5	56
Apr.-June .	107.2	73.5	65.1	6.4	58.7	48.5	33.7	14.8	55
July-Sept. .	108.5	75.0	65.7	5.6	60.1	48.4	33.5	14.9	55
Oct.-Dec. .	108.5	73.3	61.4	5.5	55.9	52.6	35.2	17.4	52
1971									
Jan.-Mar. .	109.1	69.0	58.9	6.0	52.9	56.2	40.1	16.1	48
Apr.-June .	110.3	76.7	66.1	6.3	59.8	50.5	33.6	16.9	54
July-Sept. .									
Oct.-Dec. .									

1/ Estimated weighted average price of retail cuts. 2/ For quantity equivalent to 1 lb. of retail cuts: Beef: 1.41 lb. of carcass beef; pork, 1.07 lb. of wholesale cuts; lamb, 1.18 lb. of carcass lamb. 3/ Payment to farmer for quantity of live animal equivalent to 1 lb. of retail cuts: Beef, 2.28 lb.; pork, 1.97 lb.; lamb, quantity varies by months from 2.42 lb. in May to 2.48 lb. in October. 4/ Portion of gross farm value attributed to edible and inedible byproducts. 5/ Gross farm value minus byproduct allowance.

THE BILL FOR MARKETING FARM FOOD PRODUCTS

Jeannette Findlay and Leland Southard
Marketing Economics Division

ABSTRACT: The marketing bill—an estimate of all costs and profits incurred in transporting, processing, and distributing farm food products—totaled \$68 ½ billion in 1970, up 8.3 percent over 1969. Labor costs, nearly half of the bill, accounted for most of the increase. Profits that corporate firms derived from marketing farm foods totaled \$4 billion in 1970, the same as in 1969. Farmers received \$33.1 billion for farm food products, 3.1 percent more than in 1969. Consumers spent \$101.6 billion on domestic farm foods, 6.6 percent more than in 1969. This increase mainly reflected higher food prices; purchase volume rose only slightly.

KEY WORDS: Marketing bill, costs, farm value, food expenditures

The marketing bill is an estimate of the total cost of transporting, processing, and distributing U.S. farm-originated foods purchased by civilian consumers. It is the difference between consumer expenditures and farm value (fig. 2). The marketing bill statistics show the distribution of consumer expenditures between the marketing system and farmers, and distribution of marketing costs among commodity groups and individual cost components such as labor.

for the other product groups ranged from 4 percent for dairy products to 8.4 percent for miscellaneous products.

The increase in consumer expenditures for farm foods in 1970 was greater than the rise in food prices reflecting a rise of about 2 percent in total consumption. Retail store prices of farm foods rose 4.3 percent and prices in away-from-home eating establishments rose 7½ percent. Both expenditures and food prices reflected increases in farm value (gross returns to farmers for food products) and the marketing bill.

Consumers are spending a smaller proportion of their income for farm foods. In 1970, they spent 14.8 percent of disposable personal income for farm foods, compared with 15.1 percent in 1969 and 18.8 percent in 1960 (table 6). The bill for marketing farm food products was 10 percent of disposable income in 1970—a decrease from 12.6 percent in 1960. Farm value was 4.8 percent of disposable income in 1970—a decline from 6.2 percent in 1960 (fig. 3).

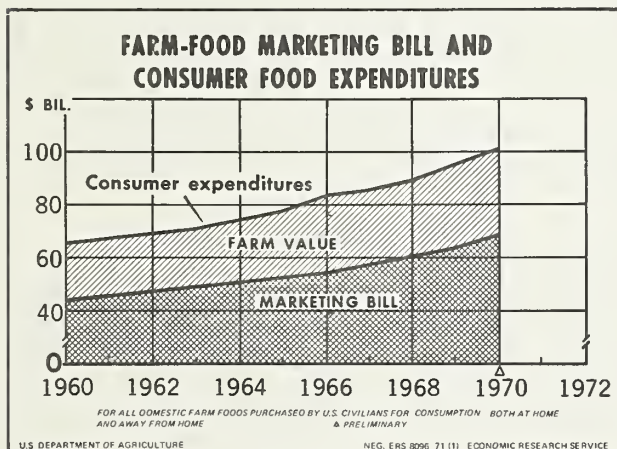


Figure 2

Consumer Expenditures

Civilian consumers spent \$101.6 billion on food originated on U.S. farms in 1970, 6.6 percent more than in 1969 (table 4). Included in the total are expenditures for food in retail stores, food purchased in restaurants and other away-from-home eating establishments, and the value of food served by schools, hospitals, and other institutions.

Consumer expenditures increased for all major product groups (table 5). Expenditures for meat, the largest product group, rose the most or 8.5 percent due to higher prices and increased consumption. Increases

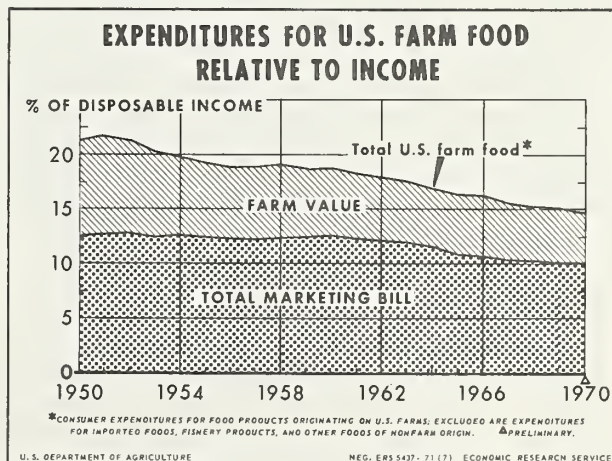


Figure 3

Table 4.--Marketing bill, farm, value, and consumer expenditures for domestic farm-food products bought by civilians, 1947-70

Year	: Civilian :	:	:	:	Year	: Civilian :	:	:	:
	: expendi-	: Total :	: Farm :	:		: expendi-	: Total :	: Farm :	:
	: tures for :	: marketing:	: value :	:		: tures for :	: marketing:	: value :	:
	: farm foods:	: bill :	: <u>2/</u> :	:		: farm foods:	: bill :	: <u>2/</u> :	:
	: <u>1/</u> :	:	:	:		:	:	:	:
:- - - <u>Billion dollars</u> - - - ::					: - - - <u>Billion dollars</u> - - -				
1947 ...:	41.9	22.6	19.3	:	1959 ...:	63.1	42.2	20.9	:
1948 ...:	44.8	24.9	19.9	:	1960....:	65.9	44.2	21.7	:
1949 ...:	43.4	25.0	17.4	:	1961 ...:	67.1	45.1	22.0	:
1950 ...:	44.0	26.0	18.0	:	1962 ...:	69.3	46.9	22.4	:
1951 ...:	49.2	28.7	20.5	:	1963 ...:	71.5	48.9	22.6	:
1952 ...:	50.9	30.5	20.4	:	1964 ...:	74.6	51.2	23.4	:
1953 ...:	51.0	31.5	19.5	:	1965 ...:	77.6	52.1	25.5	:
1954 ...:	51.1	32.3	18.8	:	1966 ...:	82.8	54.7	28.1	:
1955 ...:	53.1	34.4	18.7	:	1967 ...:	84.8	57.5	27.3	:
1956 ...:	55.5	36.3	19.2	:	1968 ...:	90.1	61.1	29.0	:
1957 ...:	58.3	37.9	20.4	:	1969 ...:	95.3	63.2	32.1	:
1958 ...:	61.0	39.5	21.5	:	1970 <u>3/</u> :	101.6	68.5	33.1	:

1/ Consumer expenditures for domestic farm-food products; excluded are expenditures for imported foods, fish and other foods not originating on U.S. farms, alcoholic beverages, food consumed on farms where produced, and military food purchases. Foods are valued at retail store prices except food sold in the form of meals and those sold at less than retail prices which are valued at the point of sale.

2/ The farm value is the gross return to farmers for products equivalent to those sold to consumers. Values of inedible byproducts, nonfood products, and exports are not included.

3/ Preliminary. (Beginning with 1960, estimates are for 50 States.)

All food expenditures ¹ amounted to \$114 billion in 1970, an 8.9 percent increase over 1969. Higher prices accounted for nearly two-thirds of the increase. Increased consumption, additional consumer services, and shifts in commodity mix accounted for the remaining third of the increase in food expenditures.

Expenditures for all food as a percentage of disposable income declined from 16.7 percent in 1969 to 16.6 percent in 1970. They contrasted with the 20 percent in 1960. The proportion of income spent on food in the past decade has declined an average of one-third of a percentage point per year.

Farm Value

Farmers received \$33.1 billion for farm foods in 1970, 3.1 percent more than in 1969. The farm value of all major product groups except poultry and eggs and fruits and vegetables rose in 1970. Farm value of the

miscellaneous group rose the most, about 19 percent, due partially to higher farm prices for oilseeds and sugar. Farm value of grain mill and bakery products rose 7.6 percent, while meat products and dairy products rose 4.2 and 4.4 percent, respectively. Farm value of poultry and eggs and fruits and vegetables declined 4.2 and 2.5 percent, respectively.

The increase in farm value represented 16 percent of the \$6.3 billion increase in consumer expenditures for farm foods in 1970. In the past decade, the farm value accounted for a third of the increase in consumer expenditures.

Returns to farmers for farm food products represented one-third of the amount consumers spent for farm foods in 1970. The marketing bill accounted for the rest.

Marketing Bill

The bill for marketing farm food products amounted to \$68 1/2 billion in 1970, an 8.3 percent increase over

¹Department of Commerce, see footnote 1, table 6.

Table 5.--Consumer expenditures, marketing bill, and farm value for farm foods, by commodity groups, 1960-70

Year	All farm foods				Meat products				Dairy products				Poultry and eggs			
	Expend- itures	Market- ing bill	Farm value	Market- ing bill	Expend- itures	Market- ing bill	Farm value	Market- ing bill	Expend- itures	Market- ing bill	Farm value	Market- ing bill	Expend- itures	Market- ing bill	Farm value	Market- ing bill
	Billion dollars															
1960	65.9	44.2	21.7	10.2	18.4	10.2	8.2	12.1	7.5	4.6	5.0	2.2	5.0	2.2	2.8	2.8
1961	67.1	45.1	22.0	10.3	18.6	10.3	8.3	12.2	7.6	4.7	5.1	2.4	5.1	2.4	2.7	2.7
1962	69.3	46.9	22.4	10.5	19.2	10.5	8.7	12.4	7.8	4.6	5.1	2.4	5.1	2.4	2.7	2.7
1963	71.5	48.9	22.6	11.4	19.9	11.4	8.5	12.6	7.9	4.7	5.2	2.5	5.2	2.5	2.7	2.7
1964	74.5	51.2	23.3	12.3	20.8	12.3	8.5	12.9	8.1	4.8	5.4	2.6	5.4	2.6	2.8	2.8
1965	77.6	52.1	25.5	11.9	21.8	11.9	9.9	13.0	8.1	4.9	5.6	2.7	5.6	2.7	2.9	2.9
1966	82.8	54.7	28.1	13.2	24.5	13.2	11.3	13.5	8.1	5.4	6.6	3.1	6.6	3.1	3.5	3.5
1967	84.8	57.5	27.3	14.0	25.1	14.0	11.1	13.5	8.1	5.4	6.1	3.2	6.1	3.2	2.9	2.9
1968	90.1	61.1	29.0	14.8	26.7	14.8	11.9	14.6	8.9	5.7	6.5	3.3	6.5	3.3	3.2	3.2
1969	95.3	63.2	32.1	14.8	28.5	14.8	13.7	15.0	9.0	6.0	7.4	3.6	7.4	3.6	3.8	3.8
1970	101.6	68.5	33.1	16.7	30.9	16.7	14.2	15.5	9.3	6.2	7.7	4.1	7.7	4.1	3.6	3.6
	2/															
	Fruits and vegetables				Grain mill products				Bakery products				Miscellaneous			
	Expend- itures	Market- ing bill	Farm value	Market- ing bill	Expend- itures	Market- ing bill	Farm value	Market- ing bill	Expend- itures	Market- ing bill	Farm value	Market- ing bill	Expend- itures	Market- ing bill	Farm value	Market- ing bill
1960	14.5	11.0	3.5	2.1	2.7	2.1	.6	6.8	6.0	.8	6.3	5.1	6.3	5.1	1.2	1.2
1961	14.7	11.2	3.5	2.2	2.8	2.2	.6	7.0	6.2	.8	6.7	5.3	6.7	5.3	1.4	1.4
1962	15.4	11.8	3.6	2.2	2.9	2.2	.7	7.4	6.5	.9	6.9	5.6	6.9	5.6	1.3	1.3
1963	15.6	12.0	3.6	2.4	3.1	2.4	.7	7.7	6.8	.9	7.4	5.9	7.4	5.9	1.5	1.5
1964	16.5	12.4	4.1	2.5	3.2	2.5	.7	7.9	7.0	.9	7.8	6.3	7.8	6.3	1.5	1.5
1965	17.1	12.7	4.4	2.7	3.4	2.7	.7	8.1	7.1	1.0	8.6	6.9	8.6	6.9	1.7	1.7
1966	17.7	13.4	4.3	2.6	3.3	2.6	.7	8.2	7.1	1.1	9.1	7.2	9.1	7.2	1.9	1.9
1967	18.3	14.0	4.3	2.8	3.5	2.8	.7	8.7	7.6	1.1	9.4	7.7	9.4	7.7	1.7	1.7
1968	19.6	14.9	4.7	2.9	3.6	2.9	.7	8.9	7.9	1.0	10.1	8.4	10.1	8.4	1.7	1.7
1969	20.7	15.8	4.9	3.0	3.7	3.0	.7	9.2	8.1	1.1	10.8	8.9	10.8	8.9	1.9	1.9
1970	21.7	16.9	4.8	3.2	4.0	3.2	.8	10.0	8.8	1.2	11.7	9.5	11.7	9.5	2.2	2.2

1/ Farm value of bakery products includes farm values of flour, milk, eggs, fruit, lard, vegetable shortening, and sugar used in bakery products. Farm value of these ingredients are not included in farm values of other groups. 2/ Preliminary. Commodities groups may not add to totals due to rounding.

Table 6.--Consumer food expenditures, marketing bill, and farm value as a proportion of disposable income, 1960-70.

Year	: Disposable : : personal : : income :	: U.S. farm foods : : Consumer : : expenditures:	: Marketing : : bill :	: Farm : : value :	: Consumer expenditures : for : all foods <u>1/</u>
	-----Billion dollars-----				
1960 ...:	350.0	65.9	44.2	21.7	70.1
1961 ...:	364.4	67.1	45.1	22.0	72.1
1962 ...:	385.3	69.3	46.9	22.4	74.4
1963 ...:	404.6	71.5	48.9	22.6	76.5
1964 ...:	438.1	74.5	51.2	23.3	80.5
1965 ...:	473.2	77.6	52.1	25.5	85.8
1966 ...:	511.9	82.8	54.7	28.1	92.0
1967 ...:	546.3	84.8	57.5	27.3	93.9
1968 ...:	591.2	90.1	61.1	29.0	99.6
1969 ...:	631.6	95.3	63.2	32.1	105.3
1970 ...:	687.8	101.6	68.5	33.1	114.0
	-----Percent of personal disposable income-----				
1960 ...:	--	18.8	12.6	6.2	20.0
1961 ...:	--	18.4	12.4	6.0	17.8
1962 ...:	--	18.0	12.2	5.8	19.3
1963 ...:	--	17.7	12.1	5.6	18.9
1964 ...:	--	17.0	11.7	5.3	18.4
1965 ...:	--	16.4	11.0	5.4	18.1
1966 ...:	--	16.2	10.7	5.5	18.0
1967 ...:	--	15.6	10.5	5.0	17.2
1968 ...:	--	15.2	10.3	4.9	16.8
1969 ...:	--	15.1	10.0	5.1	16.7
1970 ...:	--	14.8	10.0	4.8	16.6

1/ Department of Commerce, Office of Business Economics. These estimates of food expenditures differ in several aspects from ERS estimates of expenditures for farm foods. The OBE estimates of all food include, but the ERS estimates exclude, the value of imported foods, seafoods, food furnished military personnel, and food consumed on farms where produced. However, the OBE estimates exclude, but ERS estimates include, the value of food furnished hospital patients, students in boarding schools, and inmates of institutions, food furnished by Government agencies to schools and needy persons, food purchased as a business expense, and the value of food served by airlines to their passengers.

1969. The marketing bill for all product groups rose. The largest increases occurred for meats, and poultry and eggs.

The increase in the marketing bill in 1970 was more than double the 3.6 percent increase in 1969. The decade's average annual rise was 4.6 percent.

Among commodity groups, fruits and vegetables have the largest marketing bill followed closely by meats (fig. 4). In 1970, the combined cost of marketing fruits and vegetables and meats accounted for almost half of the marketing bill. Dairy, bakery, and miscellaneous products each accounted for about one-seventh. The importance of the various product groups in the total marketing bill in 1970 was not much different than in 1969. Over the past decade the marketing bill for meats, and poultry and eggs has risen slightly faster than other food groups, mainly reflecting an increase in consumption.

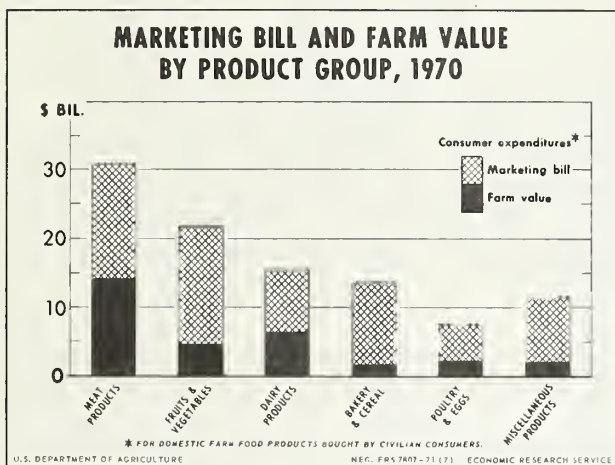


Figure 4

Increases in the marketing bill last year can be attributed to (1) larger volume of products moving through the marketing system; and (2) higher prices of marketing inputs which were only fractionally offset by small gains in productivity. Higher prices of inputs are of most concern because they usually lead to increases in costs per unit of output and higher retail prices.

In 1970, around four-fifths of the increase in the marketing bill was attributed to higher costs of labor, packaging materials, and other goods and services bought by marketing firms. Hourly earnings of employees engaged in food processing, wholesaling and retailing increased about 7 percent and prices of intermediate goods and services rose nearly 6 percent.

Growth in the marketing volume accounted for about a fifth of the increase in the bill in 1970. The increase in volume marketed reflects increased per capita consumption and population.

COMPONENTS OF THE MARKETING BILL

Labor

Labor costs for marketing domestic farm food products, nearly half of the marketing bill, totaled an estimated \$32 billion in 1970, up 9.2 percent from 1969 (table 7). This increase reflected both higher wages and more man-hours. Labor costs in processing, wholesaling, retailing, and away-from-home eating increased at an annual rate of 6.1 percent over the last decade. Labor employed in food retailing and away-from-home eating establishments accounted for slightly over half of total labor cost, and labor employed in food processing about one-third. The remaining labor cost was for wholesaling.

Labor cost includes wages and salaries of employees, wage supplements such as social security, tips received by food service employees as well as an imputed value of earnings of proprietors and unpaid family workers. Labor costs accounted for 47 percent of the marketing bill in 1970 compared with 46 percent in 1969 and 42 percent a decade ago.

The increase in labor costs in 1970 came from increases both in hourly labor costs and employment. Hourly labor costs increased nearly 8 percent, continuing a long-term trend (table 8). Employment in food marketing has gone up gradually the past decade as a result of increases in the volume of food handled by the marketing system and increases in services per unit of product.

Unit labor costs rose about 7 percent in 1970 reflecting the sharp rise in hourly labor cost and only a small gain in labor productivity. Output per man-hour in the total private nonfarm economy, which includes food marketing firms, rose less than 1 percent in 1970 compared with an average annual increase of about 3 percent in the past decade.

Packaging Materials

See following article, *Cost of Packaging Materials for Farm Foods*.

Rail and Truck Transportation

The cost of shipping farm food products by truck and rail was \$5.2 billion in 1970, up \$0.6 billion from 1969, not including intra-city truck transportation or air and water transportation. Transportation costs accounted for 7.6 percent of the total marketing bill in 1970 compared with 7.3 percent in 1969, and 9 percent in 1960.

Most of the increase in the transportation bill last year reflected increases in rates. Increases were similar for all

Table 7.--Cost components of the marketing bill for farm-foods, 1960-70

Year	Labor 1/	Packaging materials	Rail and truck transportation 2/	Corporate profits		Business taxes 3/	
				Before taxes	After taxes		
<u>Billion dollars</u>							
1960 ...	18.7	---	4.0	2.1	.9	1.3	
1961 ...	18.9	---	4.1	2.2	1.0	1.3	
1962 ...	19.7	---	4.1	2.2	1.0	1.5	
1963 ...	20.3	6.1	4.1	2.4	1.1	1.6	
1964 ...	21.1	---	4.3	2.8	1.4	1.7	
1965 ...	22.4	---	4.2	3.0	1.6	1.9	
1966 ...	23.7	---	4.2	3.4	1.8	2.0	
1967 ...	25.1	7.3	4.3	3.4	1.8	2.0	
1968 ...	27.3	---	4.5	3.6	1.8	2.3	
1969 ...	29.3	8.3	4.6	4.0	1.9	2.4	
1970 5/	32.0	8.8	5.2	4.0	1.9	2.6	
<u>Billion dollars</u>							
	Depre- ciation	Rent (net)	Adver- tising	Repairs, bad debts, con- tributions	Interest (net)	Other 4/	Total
1960 ...	1.5	1.1	1.3	.7	.2	13.3	44.2
1961 ...	1.5	1.1	1.3	.8	.3	13.6	45.1
1962 ...	1.7	1.3	1.5	.8	.3	13.8	46.9
1963 ...	1.7	1.3	1.5	.9	.3	8.7	48.9
1964 ...	1.8	1.4	1.6	.9	.3	15.3	51.2
1965 ...	1.8	1.5	1.7	1.0	.4	14.2	52.1
1966 ...	2.0	1.6	1.8	1.0	.4	14.6	54.7
1967 ...	1.9	1.6	1.8	1.0	.5	8.6	57.5
1968 ...	1.9	1.8	1.6	1.1	.7	16.3	61.1
1969 ...	2.0	1.9	1.7	1.2	.8	7.0	63.2
1970 ...	2.1	2.0	1.9	1.3	.8	7.8	68.5

1/ Includes supplements to wages and salaries such as social security and unemployment insurance taxes and health insurance premiums; also includes imputed earnings of proprietors, partners, and family workers not receiving stated remuneration.

2/ Includes charges for heating and refrigeration; does not include local hauling.

3/ Includes property, social security, unemployment insurance, State income, and franchise taxes, license fees, etc., but does not include Federal income tax.

4/ Includes food service in schools, colleges, hospitals, and other institutions; utilities, fuel, promotion, local for-hire transportation, water transportation, insurance, and the cost of packaging materials for years when it is not shown separately.

5/ Preliminary.

Table 8.--Indexes of labor cost for marketing farm-food products, 1960-70

Year	Total labor cost	Hourly labor cost <u>1/</u>	Unit labor cost <u>2/</u>	Volume of farm-food marketed
	----- 1967=100 -----			
1960	74	74	85	87
1961	75	77	85	88
1962	79	82	88	90
1963	81	85	89	92
1964	84	87	88	96
1965	89	90	93	96
1966	95	95	97	98
1967	100	100	100	100
1968	109	108	106	102
1969	117	114	113	103
1970 <u>3/</u>	128	123	121	106

1/ Hourly labor cost derived by dividing total labor cost (table 7) by total man-hours worked.

2/ Unit labor cost is the quotient of the indexes of total labor cost and volume of farm-food products marketed to civilian consumers. The index of farm-food products marketed is constructed by weighting the quantities consumed on a retail weight basis by 1957-59 average retail prices.

3/ Preliminary.

commodities. Grain rates rose 9 percent, livestock, meats and fruits, 10 percent; and vegetables and soybeans, 11 percent.

The increases in rail rates in 1970 resulted from three general rail rate increases authorized by the Interstate Commerce Commission in November 1969, June 1970, and November 1970. Only the increase authorized in November 1969 affected rates throughout all of 1970. The two in 1970 will first be fully reflected in average rates for 1971.

Regulated truckers also have increased rates several times in recent years. However, because of the large number of rate-making units operating in the trucking sector and the lack of coordination of rate proposals among units, it is not feasible to generalize about increases in truck rates. Moreover, truck rates for unmanufactured agricultural products are not regulated, so information about changes in this sector is not available.

Corporate Profits

Profits (before Federal income taxes) that corporations derive from marketing farm food products totaled \$4 billion in 1970—the same as in 1969. Although sales were greater, profit rates of corporations declined. After-tax profits amounted to 48 percent of the before-tax profits in 1969 and 1970.

Corporate profits accounted for 5.8 percent of the

marketing bill in 1970, down from 6.3 percent in 1969. While profits are a relatively small proportion of the marketing bill, they exceed many cost components of the bill such as depreciation, advertising, and rent.

Capital Costs

Capital costs include depreciation, rent, and interest. In 1970, capital costs totaled \$4.9 billion, 4.3 percent over 1969. Interest rates on long-term bonds (Moody's Aaa), an indicator of the cost of new long term credit, increased 14 percent in 1970 over 1969, and 85 percent over the last 10 years. The E. H. Boeckh Index of commercial and factory building costs increased 7½ percent in 1970 over 1969, and 52 percent in the last 10 years.

Advertising

Advertising costs include expenditures for television, radio, and newspapers. Advertising expenditures totaled \$1.9 billion in 1970, up \$0.2 billion from 1969. Food processors accounted for roughly half of total advertising expenditures for farm foods.

In the past decade advertising expenditures have increased at about the same rate as food sales.

Business Taxes

Business taxes include property taxes, social security payments, unemployment insurance, State income and

franchise taxes, and license fees. In 1970 business taxes totaled \$2.6 billion—up 8.3 percent from 1969. Business taxes have doubled in the last 10 years. Social security payments have increased in both rate and annual maximum payments. Both State and local tax rates have risen sharply in recent years.

Other Costs

Other costs, the residual component of the marketing bill, include the costs of many goods and services, including institutional feeding costs, utilities, fuel, insurance, professional services, and packaging materials for years that these costs have not been estimated. Efforts are being made to develop direct estimates of some of these items.

COST CHANGES SINCE 1960

Between 1960 and 1970, the marketing bill increased \$24.3 billion or 55 percent reflecting growth in food marketing and rising cost of doing business (fig. 5). About two-fifths of this increase was due to increased volume of products marketed and the rest to increased prices and more marketing services provided. Labor costs, the largest component, increased by \$13.3 billion.

About \$4.6 billion, or about a fifth of the increase,

resulted from rising depreciation, business taxes, advertising, rent, interest, repairs, bad debts, and contributions. Depreciation, rent, and advertising expenses rose 54 percent while business taxes doubled and interest increased 4 times.

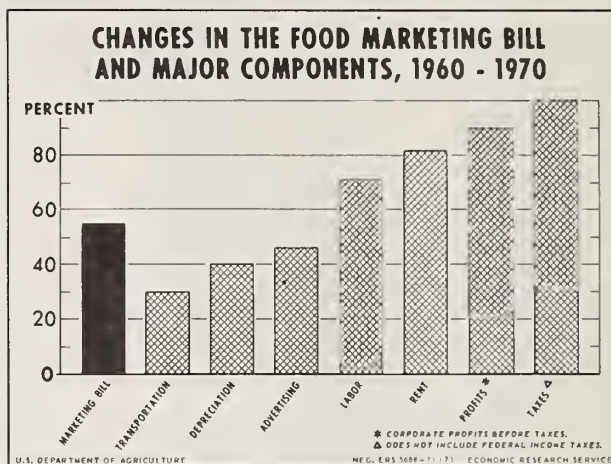


Figure 5

Profits accounted for \$1.9 billion of the increase in the marketing bill from 1960 to 1970 and transportation \$1.2 billion. Transportation costs increased 30 percent, the smallest increase of any component.

COST OF PACKAGING MATERIALS FOR FARM FOODS

Cleveland P. Eley
Marketing Economics Division

ABSTRACT: Packaging material costs for U.S. produced farm foods were \$8.8 billion for 1970. This was nearly 9 percent of the money consumers paid for these foods. Average annual growth rate in packaging material costs has been over 5 percent since 1958 versus about 4½ percent for all food marketing costs. Price increases for packaging materials were relatively steady from 1958 to 1969, averaging about 1 percent annually, but they increased dramatically from 1969 to 1970, some as much as 8½ percent. Paper products account for 42 percent of food packaging material costs; metal containers, 22 percent and glass containers 9 percent.

KEY WORDS: Food, packaging materials, costs, prices, marketing costs.

Firms processing and distributing foods are major users of containers and packaging materials, purchasing just under half of all packaging products. In 1970, food marketing firms spent \$8.8 billion for containers and packaging materials, about 5 percent more than in 1969, and 86 percent more than in 1958 (table 9).

Packaging material costs represent about 9 percent of the \$101.6 billion expenditures for farm foods, and 13 percent of the \$68½ billion marketing bill (total cost of transporting, processing, and distributing farm foods). Packaging material costs are the second largest component of the marketing bill, exceeded only by labor costs.

Packaging material costs increased at an average annual rate of over 5 percent per year between 1958 and 1970, compared with an average annual increase of about 4½ percent in the marketing bill for farm foods.

Prices of Packaging Materials

Wholesale prices for packaging materials rose substantially more in 1970 than other recent years. A combined index of prices of all packaging materials rose about 4 percent. Some packaging materials rose far more; for instance, paper bags and shipping sacks increased 8½ percent and grocery bags increased 8 percent (table 10). Prices of most packaging materials increased very little between 1958 and 1969, averaging about 1 percent annually. Prices of paper products increased less than glass or metal containers. Nearly all the increase in containers and packaging value of shipments between 1958 and 1969 was due to increases in the quantity used. In 1970, most of the increase in value of shipments was due to price increases.

Prices of both metal and glass containers are expected to rise further in the next few years. Labor contracts recently signed in both industries provide for increases in wages and fringe benefits. Mechanization may not increase labor productivity enough to prevent higher unit labor costs and higher prices.

Prices of tinplate, the major material used in manufacturing metal cans, has increased substantially in

recent years. However, the recent development of tin-free cans is expected to slow can price increases.

Annual Estimates of Packaging Material Costs

The estimates of container and packaging costs presented in this article are the result of research to develop separate estimates of the packaging material cost component of the marketing bill. The estimates represent complete coverage of packaging materials used for selected years since 1958. Additional research is underway to estimate packaging costs for other years.

The development of estimates of packaging material costs reduces the other or residual element from 24 percent to 11 percent of the total bill.

Derivation of Estimates¹

Value of shipments of various types of packaging materials are compiled by the Department of Commerce from the Census and Annual Survey of Manufactures. Estimates of the proportion of all containers and packaging materials used for food were obtained from *Modern Packaging Encyclopedia* and other sources. These end use data were applied to the value of shipments data to compute the cost of food containers and packaging materials. For example, the value of shipments of folding paper boxes amounted to about \$1.3 billion in 1970. Of this amount about half, or \$663 million, went into the marketing of farm foods.

For some types of packaging material, all of the value of shipments was allocated to food on the basis of the description of the material which indicated its probable use. On this basis, all of the output of the following materials is assumed to be used in processing and distributing foods: (1) Glassine, waxed parchment bags, (2) molded pulp egg cartons, (3) die-cut fillers for eggs, and (4) sanitary food containers. In other cases where end use data were not available, the same

¹Appreciation is extended to Richard Blassey, Department of Commerce for his ideas and suggestions on sources of data and end uses of packaging materials.

Table 9.--Value of containers and packaging materials used in marketing farm foods

Item	Value				
	1958	1963	1967	1969	1970 1/
	-----Million dollars-----				
Paper products	2,010	2,732	3,215	3,610	3,726
Metal containers and components (including aerosols) ...	1,131	1,245	1,592	1,800	1,912
Glass containers	382	434	571	779	826
Plastic containers and wraps	327	535	694	760	812
Wooden containers	229	258	300	308	343
Textiles	110	122	142	158	165
Other 2/	570	812	830	972	1,059
Total	4,759	6,138	7,344	8,387	8,843

1/ Projected estimates.

2/ Includes adhesives, labels, tags, tapes, cargo or bulk containers, and in-plant containers made by food processing firms.

percentage was used to allocate total industry output as for similar materials for which end use data were available. For instance, the same percentage was used for steel strapping as for fiber and corrugated materials for which end use data were available. For metal caps, the same percentage was used as for glass containers used in foods. Food uses of adhesives, labels, tags, and twines were estimated to account for approximately half of the total use of these materials.

Packaging material used in alcoholic beverages, imported foods, foods consumed by the military, seafoods, and the proportion of soft drinks manufactured from imported sugar were excluded from the estimates to make them comparable with the marketing bill statistics.

Packaging materials are divided into seven general classes according to type of raw material. Each class includes more specific types of packaging or materials.

Paper products are used the most in packaging food products. In 1970, the value of paper products used in marketing food products amounted to \$3.7 billion (table 9). Paper products represented over 42 percent of food packaging material costs in both 1958 and 1970 (table 11). Sanitary food containers, solid fibre and corrugated boxes, and folding paper boxes accounted for three-fourths of the value of paper products used in food

marketing. Other types of paper products used in food marketing include: (1) grocery-variety and miscellaneous bags; (2) waxed wraps (bread, candy, etc); (3) rigid paper boxes (set-up); (4) molded pulp egg cartons; and (5) paper shipping sacks.

Paper is a very versatile product, being relatively low in cost and until recent years, stable in price. The industry has done considerable research to find new uses and adapt its products to all packaging uses. As an example, moisture resistant fibreboard boxes were developed and are now widely used for packaging fresh vegetables, meats, and poultry products.

Metal containers and component materials (including aerosols) are the second largest class of materials used in packaging U.S. farm foods, accounting for 22 percent of total costs in 1970, down from 24 percent in 1958. Metal cans represented over 90 percent of this class in 1970. Other metal products include metal closures, foils, aerosols, and steel strappings.

Cans used in canning fruits, vegetables and juices account for over half of the cans used to package foods. While the use of cans for soft drinks accounts for a much smaller proportion of the cans used for farm foods, the use of cans for soft drinks has increased dramatically in recent years.

Table 10.--Wholesale price indexes for selected containers and packaging materials.

Item	1958	1969	1970	Annual change	
				1958-69	1969-70
	Index 1967=100	Index 1967=100	Index 1967=100	Percent	Percent
Paper bags & shipping sacks	97.7	98.6	107.0	0.1	8.5
Grocery bags	93.6	96.9	104.7	0.3	8.0
Paper boxes & shipping containers	97.0	104.5	108.3	0.6	3.6
Milk cartons (½ gallon) ...	---	100.0	102.1	---	2.1
Composite cans	---	104.9	108.8	---	3.7
Tin cans (303 x 406)	88.4	107.0	113.1	1.8	5.7
Metal fruit juice cans (6 oz.)	---	107.0	113.1	---	5.7
Glass food containers (wide mouth)	100.5	115.4	120.7	1.3	4.6
All containers & packaging material	93.0	104.0	108.0	1.0	3.8
Consumer price index					
All foods	88.6	108.9	114.9	1.9	5.5
All items	86.6	109.8	116.1	2.2	5.7

Source: Bureau of Labor Statistics, Dept. of Labor, except for the index of all containers and packaging materials which is computed by ERS from BLS indexes.

Glass containers, such as jars for canning food and packers' tumblers, returnable and non-returnable beverage bottles, and other bottles, represent the third most important class of packaging materials with 9 percent of the total food packaging market in 1970, compared with less than 8 percent in 1958. Foods canned in glass, including packers' tumblers, have almost three-fourths of this class. Soft drink bottles make up most of the rest of this class. Milk bottles have dropped to less than 1 percent.

Use of non-returnable bottles for soft drinks has increased over the years. Non-returnable bottles now

account for 80 percent of the new-glass bottle shipments for soft drinks.

Plastic containers are the fourth largest class of materials, accounting for 9 percent of the total packaging costs. Polyethylene film is the most important of this class with over one-third of the market in 1970. Cellophane accounts for one-fourth of this class, while other films, plastic bottles, and closures make up the rest. In recent years substantial increases have occurred in the use of jars and tubs for packaging cottage cheese, sour cream, butter, margarine, and various variety foods. Plastics used in food packaging has had a faster growth

Table 11.--Distribution of farm food packaging material costs by type of material

Item	1958	1963	1967	1969	1970 ^{1/}
			Percent		
Paper products	42.2	44.5	43.8	43.0	42.1
Metal containers and components (including aerosols)	23.8	20.3	21.7	21.5	21.6
Glass containers	8.0	7.1	7.8	9.3	9.3
Plastic containers and wraps	6.9	8.7	9.4	9.1	9.2
Wooden containers	4.8	4.2	4.1	3.7	3.9
Textiles	2.3	2.0	1.9	1.9	1.9
Other ^{2/}	12.0	13.2	11.3	11.5	12.0
Total	100.0	100.0	100.0	100.0	100.0

^{1/} Preliminary.

^{2/} Includes adhesives, labels, tags, tapes, cargo or bulk containers and in-plant containers made by food processing firms.

rate than any of the other packaging materials, but it started from a lower base in 1958. Polyethylene-film has been responsible for most of the growth in the class.

Wooden containers accounted for nearly 4 percent of the market in 1970. Wooden containers have declined in the share of the market since 1958 when they had close to 5 percent. This is due, in part, to the development of moisture resistant fibreboard boxes that can be used to ship fruits and vegetables and some meats and poultry. Nailed and lock corner boxes account for about two-thirds of this class; wirebound boxes and crates, 30 percent; cooperage, veneer, and plywood and excelsior account for the rest.

Textile containers had less than 2 percent of the market in 1970, declining nearly half a percentage point since 1958. This class is made up principally of bags, both cotton and burlap. Cheese cloth, twines, and other burlap products make up the rest of the class. Bulk handling of flour and other food products has probably been the reason for the slight decline in the share of the market.

Other packaging materials accounted for an estimated

12 percent of the market in both 1958 and 1970. Unreported packaging materials, such as those made by food processors from raw materials account for 70 percent of this class. Component materials such as adhesives, labels, tags, and tapes, and cargo or bulk containers make up the rest.

Growth of Food versus Total Packaging Costs

Since 1958, the value of food containers and packaging materials has increased slightly less than total packaging industry sales. The value of shipments of food packaging material increased at an average rate of 5.3 percent compared with 5.8 percent for total industry shipments. However, food uses for some packaging materials have increased more rapidly than for all other uses combined. For example, food uses of paper products increased slightly more than all other uses due to large increases in the use of rigid paper boxes, folding paper boxes, and sanitary food containers. This can be explained in part by an increase in the sales of convenience foods in recent years.

2001 AGRICULTURE, MARKETING AND THE ENVIRONMENT—PROBLEMS AND RESEARCH NEEDS

George B. Rogers and James G. Vertrees
Marketing Economics Division

ABSTRACT: Marketing firms will be directly affected by implementation of programs to improve the environment, since problems in agriculture are substantial. Firms must seek least-cost solutions to such problems in producing, input supplying, processing, and distribution. Many technological alternatives exist, but their application will be influenced by the size, location, and functions of firms, and the economic uses for byproducts from wastes. Comprehensive research programs are needed to aid firms and public agencies in achieving pollution abatement with a minimum of adverse impacts on agricultural industries.

Key Words: Marketing, environment, pollution, research methods.

Environmental quality problems may seem to have emerged only recently as a matter of public concern. But they have existed for a long time. With the effects cumulative, we have now crossed the threshold of public awareness.

Pollution is not wholly the product of man's exploitation. Many sources of pollution are natural. Environmental problems arise because these processes are speeded up by man interacting with his environment and adding new pollutants.¹ Agricultural production and marketing contribute substantially to pollution.

Environmental issues accentuate the direct concern of marketing firms with problems related to producing and processing, input supplying, and retailing and distribution. Marketing firms also have a heightened awareness of the problems facing transportation and supply services they depend upon and of the concerns of consumers and various levels of government.

The firm is an organized behavioral system seeking equilibrium at three different levels. The first is the control and balance of forces within the firm so it can survive and develop. The second is a market equilibrium with other competitive firms in the industry. A third level increasingly involves the firm and its environment. This embraces the social and physical environment and other external factors relevant to the survival and success of the firm, and which, in turn, might be critically affected by the firm's actions.²

Laws and regulations relating to pollution have existed at the Federal, State, and local level for many years. Many have not been fully enforced and some have not been used at all. Recently new regulations, ordered into effect by the President, established a mandatory permit system for all industries discharging wastes into

navigable waters. These implemented provisions of the 1899 Refuse Act. This program now applies to confined feeding operations with 1,000 or more animal units per year. An animal unit is based on the biochemical oxygen demand (B. O. D.)³ equivalent of one beef steer. One thousand animal units equals 700 dairy cows, 4,500 butcher hogs, 12,000 sheep, 35,000 feeder pigs, 55,000 turkeys, 180,000 laying hens, or 290,000 broilers as well as 1,000 cattle on feed.⁴

Regulations which will affect marketing firms are also being developed and implemented under other legislation. Under the Water Quality Act of 1965, States are charged with primary responsibility for implementing and enforcing water quality standards for their interstate waters. State water quality standards must meet Federal approval. State-Federal water quality standards are ultimately subject to Federal enforcement, if necessary. The 1970 Clean Air Act contained more stringent air quality measures than any previous legislation. Individual State and local governments have also enacted much new environmental legislation.

Causes of Environmental Problems

Some causes of the current problems are: (1) Population growth and concentration, (2) emphasis on physical and economic efficiency at the expense of social costs, (3) consumer demands for added services and convenience, (4) insufficient attention to the relationships within economic systems and between economic and ecological systems, and (5) failure to act earlier.

Air, water, and land have a natural capacity for absorbing some pollutants and transforming them into harmless forms. But the capacities of these resources to absorb pollutants without deteriorating in quality are

¹Jansma, J. Dean, "The Economics of Environmental Quality-The Identification of Trade-Offs," Paper, Northeastern Agricultural Economics Council annual meeting, Amherst, Mass., June 22, 1971.

²Alderson, Wroe. "A Normative Theory of Marketing Systems," in *Theory in Marketing*, Eds. Cox, Alderson, and Shapiro (Homewood, Ill.: Richard D. Irwin Inc., 1964), p. 94-95.

³B.O.D. is a measure of the dissolved oxygen in water required to biologically degrade organic matter.

⁴Ruckelshaus, W.D., Statement of the Administrator, Environmental Protection Agency, before the Committee on Agriculture, House of Representatives, May 25, 1971.

limited. Transgressions of these limits are evidenced by polluted rivers and unclean air. Increases in population and in production of goods and services, along with increasing concentration of population in urban areas, have had adverse effects on natural resources. The U.S. population increased over 13 percent from 1960 to 1970 and production in real terms about 50 percent. Two-thirds of our people now occupy only 9 percent of the land base. Thus, water, sewage, and land-fill problems in metropolitan areas have become serious. Moreover, population density has accentuated air, odor, and noise pollution problems.

Much of our economic development occurred without full regard for environmental impacts. Too often physical and economic efficiency has been pursued at the expense of clean air, water, and land. Improvements in material well-being have not fully reflected the social costs of deteriorating environmental quality. For example, high yields in agriculture have helped hold down the cost of farm products entering marketing channels. But this has often been achieved through the use of pesticides, chemicals, and additives with potential pollutant or residual effects.

Many added processing activities have required greater water consumption and increased requirements for waste treatment facilities. The growth of large-scale units in production and processing has increased the geographical concentration of wastes and the potential for either damage or economical recovery of wastes. The demands of consumers for, or their acceptance of, added services and convenience items have contributed materially to the waste load from discarded packaging and containers.

Pollutants and Pollution

Confusion exists in terminology used in discussing environmental or pollution problems. This involves types of pollutants, kinds of pollution, methods of transmission, and causes and effects. Semantic difficulties occur because environmental questions are very complex. Table 12 presents examples of pollutants from agriculturally related sources. The transmission of pollutants occurs by air, water, and plants, insects, animals, and equipment, often in combination or in sequence. Table 13 presents examples of agriculturally related pollution.

Air pollution in agriculture may be less important than in the industrial sector. Yet, agriculture is affected by air pollution caused by transportation methods it uses and any added costs for these services due to future abatement efforts.

Organic wastes are a major problem in the agricultural sector. These byproducts of production and manufacturing processes, when carried in water, produce a high biochemical oxygen demand. This can cause depletion of dissolved oxygen in waters supporting fish and other forms of life. Recreational and aesthetic values of the receiving waters are reduced, and subsequent domestic and industrial users incur costs in making water

fit for their purposes. Dry organic wastes on land may be combustible, produce odors, and attract flies and other vermin. Odor, along with noise, has become a major problem for livestock and poultry producers who have neighbors close by.

Farm-level organic wastes are mainly animal manure and bedding, dead animals, and leaves, stalks, stubble and culls from agricultural crops. Trends in livestock, milk, poultry, and egg production toward automation, geographic concentration, confinement production, and expanding sizes of production units result in concentrated volumes of animal wastes in rural areas. Public pressures and urbanization may force producers to relocate or change conventional methods of animal waste disposal.

Farmers have made rapid strides in production technology. However, economies of scale of production have not been matched by similar developments in the collection, handling, treatment, reclamation or disposal of animal waste. The interaction of several factors determines the severity of animal waste problems, including the type and volumes of wastes produced, the distribution of sources, the proximity to people, the physical environment characteristics, and the uses and demands on natural resources.

Processing firms convert farm commodities into various products. Organic wastes, such as animal blood, tissues, and fruit and vegetable tissues, are a result. Escape of such wastes in processing plant effluent significantly increases B. O. D. loading. High levels increase the difficulty and cost of waste water treatment. Untreated effluent discharged directly into a natural waterway may cause oxygen depletion.

Collection of wastes in modern plants is complex because large volumes of water are used in processing and cleaning. A large broiler slaughtering and eviscerating plant requires a million gallons of potable water per day, and a sewage treatment plant large enough to serve the equivalent of 25,000 people. Liquid wastes from processing operations include blood, canning liquors, processing waters, and dissolved, suspended, or floating particles of solid matter. Plants having access to municipal sewage treatment facilities may not have to invest in private treatment facilities, but may be faced with municipal surcharges on B. O. D. and suspended solids.

The packaging and container wasteload generated by modern methods is substantial. A representative of a large chain stated recently:

"For every 100 pounds of groceries that our customers carry out the front door, we have four to five pounds of waste in the back room. We are shipping about 1½ million pounds of paper per week—about 42 rail cars—back to the paper mills."⁵

⁵Institute of American Poultry Industries Newsletter, May 12, 1971.

Table 12.—Examples of types of pollutants from agriculturally related sources¹

Type of pollutant	Source
Dust	Cotton ginning, alfalfa processing, farmlands, cattle pens, feed milling, wind erosion
Sediment	Land erosion
Plant nutrients	Runoff from cropland, feedlots, barnyards
Inorganic salts and minerals	Irrigation, drainage
Organic wastes	Livestock and poultry production, crops, orchards, paper manufacturing, fruit and vegetable processing, dairies, slaughtering and processing of meat animals and poultry, manufacturing of corn-starch and soy protein, sugar refining, fermenting, malting, distilling, scouring of wool, wet processing in textile mills
Infectious agents and allergens	Farm runoff, sewage, animal wastes, insects
Agricultural chemicals	Dust, runoff, plants, animals, equipment

¹Based mainly on information in Wadleigh, C. H., *Wastes in Relation to Agriculture and Forestry*, USDA, Misc. Publ. No. 1065, March 1968. In the classification used in this report, radioactive substances, chemical air pollutants, industrial

chemicals, and heat were also listed as pollutant sources, but originating almost entirely outside agriculture. For the seven classifications in the above table agriculture is an important or major source of pollutants.

Table 13.—Examples of kinds of pollution from agriculturally related causes

Kinds of pollution	Sources	Effects
Air (particulate suspension)	Processing plants, feedlots, and transportation vehicles	Nuisance, traffic hazard, possible health hazards
Water	Farms, processing plants	Raise water and sewage treatment costs, health hazards, limit recreational uses, disturb ecological balances
Land	Farms, processing plants	Restrict nearby land and water use.
Odor	Nearby farms, rendering plants, processing plants	Nuisance
Noise	Nearby farms, processing and distributing plants	Nuisance
Aesthetic	Unattractive farm, processing, distributing plants, access roads, waste accumulation, billboards	Scenic impairment, lower property values, restricted nearby land use

Other retail firms encounter similar problems and many have initiated recycling programs. Recycling will alter practices and costs of the marketing system, if many items are involved. Ultimate users also must dispose of packages and containers. Much of this material could be recycled or biodegraded. Convenience and snack packaging was recently cited as the leading source of litter, but the role of packaging in preventing both product damage and deterioration cannot be disregarded.

Figure 6 illustrates the kinds of pollution produced at various stages in production and marketing channels. It underlines the relationships among these stages and the public impacts of industry actions.

Alternative Approaches to Pollution Abatement

Means of minimizing environmental impacts are: (1) Slowing the "using up" of natural resources which are

becoming scarce, (2) reducing the various forms of pollution resulting from producing, input supplying, marketing, and consuming functions, (3) recycling within production-marketing channels to minimize "discarded resources", and (4) relocating various activities to aid in pollution abatement and to minimize adverse environmental impacts.

Firms must seek least-cost solutions to pollution control problems. The impact of added costs will vary from industry to industry and from firm to firm. No universal solution exists. Firm size, type, location, and available technology affect least-cost solutions. A major problem is posed by the uncertainty of what will constitute acceptable standards in the future. Existing operations must be modified and new operations designed to comply with acceptable standards. Present investment in pollution control to meet existing standards may not be sufficient. Variations in State and regional standards could alter the competitive position of certain firms.

AGRICULTURE MARKETING CHANNELS AND ENVIRONMENTAL POLLUTION

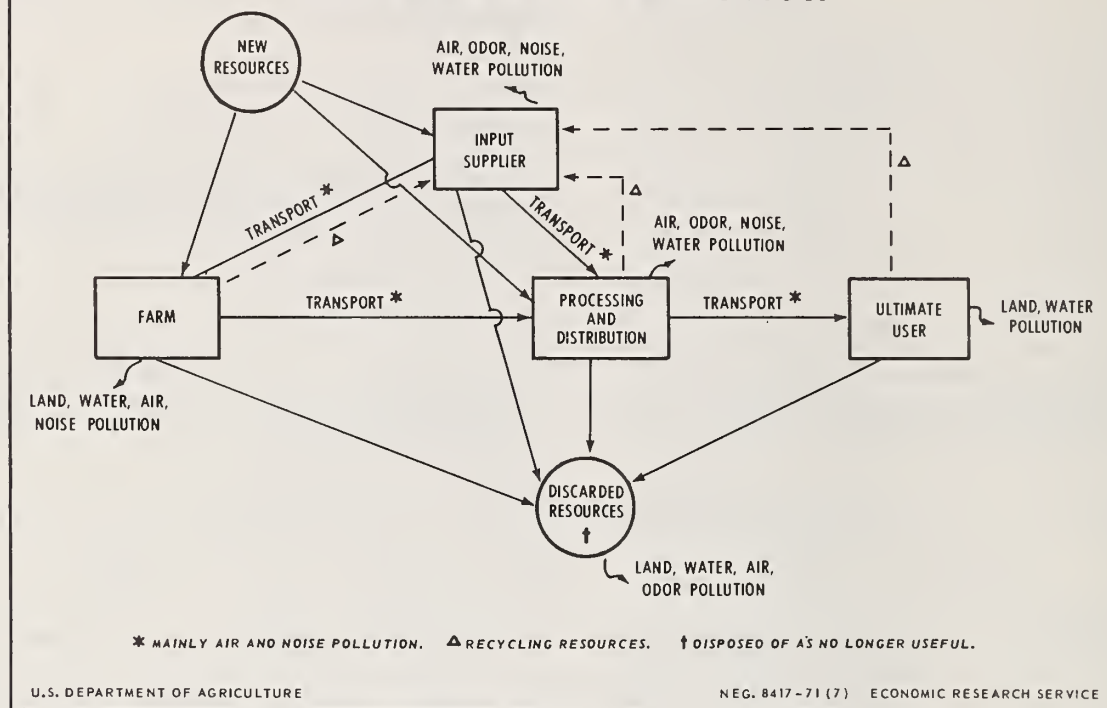


Figure 6

Field spreading can be adequate for treatment and disposal of animal manures, and recovery of plant nutrients helps reduce disposal costs. Improvements on conventional spreading methods to further reduce runoff and odor include subsoil application. If disposal on land is not feasible due to limited land areas, population density, or other factors, other methods must be utilized. Properly designed and constructed lagoon systems provide an economical means of decomposing manure through biological action. More sophisticated methods being evaluated experimentally include pyrolysis and industrial-type treatment systems.

Another approach is the utilization of animal manure as organic fertilizer and feedstuffs. At present price levels, limited amounts of animal manures are being profitably dried mechanically, pelletized, and bagged for sale. Dehydrated poultry waste (DPW) has been fed experimentally to livestock and poultry. The commercial drying process pasteurizes the manure, and the end product is high in protein and other nutrients, but low in energy. In feeding trials, DPW replaced up to 25 percent of the corn in rations for caged layers, with little influence on egg production. Even at this level of replacement, all manure produced by a flock could be used. Presently the recycling of poultry manure as a feedstuff is not sanctioned by the Food and Drug Administration. This may reflect concern over the drug

content of poultry feed and pathogenic organisms which might be transmitted.

Process modification, equipment modification, water reuse, and isolation of waste and reduced water use can bring about decreases in costs for water and organic waste treatment in processing plants. Often, relatively small capital investments in equipment changes can result in significant water saving. Blood collection in poultry processing plants can reduce the B. O. D. loading of plant effluent, since blood contributes 40 percent of the B. O. D. loading. Pretreatment—including byproduct recovery of blood, feathers, and offal through screens and traps, and solids recovery in settling or catch basins—minimizes waste loadings of treatment facilities and treatment cost. There are several incentives for firms to collect byproducts. By doing so, they can avoid municipal surcharges on B. O. D. and suspended solids, meet water quality standards, reduce private treatment costs, and gain the economic value from byproducts.

Utilizing or recycling collected wastes can help solve waste management problems. Some poultry firms collect blood, offal, and feathers from processing operations and render them into a byproduct meal which is used in poultry rations. Specialized renderers serve as an outlet for firms not having rendering facilities. Some wastes from the fruit and vegetable industry are also being utilized as animal feeds. Peach pits can be converted into

charcoal and charcoal briquets. Research is underway to provide new methods of utilizing collected processing wastes.

Current industry processing and marketing practices often determine types of products produced. Returns from some products may not justify costs involved. Giblets account for 10 percent of broiler carcass weight, but in-plant handling requires 45 percent of the water, 20 percent of the plant labor, and contributes 15 percent of the wasteload.⁶

The Research Problem

"The problem of pollution is many problems. . . a health problem of ever-expanding dimensions. . . an economic problem intimately and directly affecting many industries and agriculture, both large and small. . . a social problem creating constraints on the nature and direction of urban and regional development and patterns of land use. . . a resources problem, for most of what we discard as waste was, in an earlier phase, a useful resource or material. . . a political-institutional-management problem in which the fragmented and diverse nature of our efforts to explore, understand, and direct movement and disposition of our wastes is clearly demonstrated. . . throughout the United States. . ."

Relationships among various functions and various subsectors have too frequently been neglected in economic analysis. The scope of research must be broadened to deal with environmental problems. Such research requires simultaneous application of principles and relationships from natural science, engineering, and the social sciences. Thorough research methods can help prevent the continued neglect of certain aspects of environmental problems. The following elements should be involved: (1) Specifying variables and relationships within a conceptual model to identify research needs and gaps in scientific knowledge, (2) applying the model to case study situations to perfect analytical approaches,

and (3) studying the powers of implementing agencies and how they can best be directed toward results in the public interest.⁸

Pollution abatement may necessitate significant changes in agricultural industries. With more stringent regulations certain, and analysis specific to particular industries lacking, comprehensive programs of research are urgently needed. Research must examine pollution abatement programs in terms of environmental quality, efficiency and equity, consider possible repercussions as well as new opportunities, and estimate relevant tradeoffs. Research should be tailored to specific industries and often to conditions in defined geographic regions.

Recently, a research committee⁹ proposed an economic analysis of the impact of pollution control on poultry and egg marketing. The following objectives are based on that proposal, but have been broadened to serve as an example of an industry or subsector approach to research on environmental problems: (1) Study alternative methods available for handling and disposing of pollutants. Determine the associated fixed and variable costs for various size of units, locational situations, and degrees of pollution abatement, (2) determine costs and returns from collection and reprocessing of agricultural wastes into useful products, (3) examine announced standards. Study alternative techniques for allocating costs among producing units, input supplying and marketing operations, consumers, or the general public. Evaluate the resulting impacts on industry firms, (4) determine present and future dollar and social costs and returns associated with potential pollutants under various regulatory approaches. Develop recommendations for modifying, standardizing, and improving regulatory approaches, and (5) study the effects of pollution abatement on interregional competition in the specific industry, and on the location of particular functions within areas, including specific geographical points.

⁶Crosswhite, William M. "Implementation of Effective Pollution Control by Food Processors," paper prepared in the Department of Economics, North Carolina State University, 1971.

⁷Nat'l Acad. of Sciences, Nat'l Research Council. *Waste Management and Control*. A report to the Fed. Council for Science and Technology, 1966, Fourth printing, Sept. 1967, p. 8.

⁸Herfindahl, O. C. and Kneese, A. V. *Quality of the Environment*. Resources for the Future, Inc. (The Johns Hopkins Press, Baltimore, Md.), 1965, Third printing, 1969, p. 81-96.

⁹Northeastern Poultry Marketing Research Committee (NEM-39), June 1971.

RECENT TRENDS IN PRICE SPREADS FOR BEEF AND PORK

Donald B. Agnew
Marketing Economics Division

ABSTRACT: Beef and pork farm-retail price spreads have increased more than one-third since 1962, but year-to-year increases varied widely. Increases in beef and pork price spreads have accompanied similar increases in costs of labor and other marketing services. Seasonal and annual movements in price spreads reflect in part price adjustments to changing supplies and marketings of beef and pork, seasonal changes in consumer demand and incomes, and lags in the timing of price adjustments between various market levels.

KEY WORDS: Beef, pork, price-spreads, marketing costs.

Farm retail price spreads for both beef and pork have increased more than a third since 1962. Live animal prices, however, rose 12 percent for beef and 31 percent for pork. Spreads have tended to reach plateaus with little or no change for several years, followed by shifts upward to another level several cents per pound higher.

This pattern is especially evident in the farm-retail price spread for pork. Its annual average price spread ranged around 28 to 29 cents per retail pound from 1962 to 1965, fluctuated around 32 cents per pound during 1966-69, and then increased to 38½ cents per pound in 1970 (table 14).

For beef, the annual average was 26½ cents per pound in 1962, 28 to 30 cents during 1963-68, but then up to 34 cents in 1969 and 37 cents in 1970.

Farm-retail price spreads represent the difference between the live animal price and the average retail price per pound after converting to a common weight-equivalent basis and deducting byproduct values. They measure gross marketing costs or margins between livestock producers and the retail meat counter. Spreads change when livestock prices and retail meat prices change by different amounts. Price spread changes are usually larger when livestock prices are falling or retail meat prices are rising.

This article examines annual and quarterly changes in beef and pork price spreads since 1962. Trends in the overall farm-retail spreads are examined in relation to changing marketing costs as well as movements in farm-wholesale and wholesale-retail components of the spreads.

Marketing Costs

Increases in price spreads for beef and pork have been accompanied by rising marketing costs since 1962 (table 14). While the farm-retail spread for beef widened 40 percent and for pork 34 percent between 1962 and 1970, hourly earnings for meatpacking and for meat processing employees rose nearly 44 percent. Similarly, hourly earnings of food retailing employees rose 48

percent. Cost indexes of supplies and services bought by marketing firms were also up—containers and packaging materials rose 12 percent; fuel, power and light, 8 percent and rent, telephone, banking, and other services, 43 percent. Shipping and delivery costs have increased recently but not as markedly; rail freight rates for dressed meats declined from 1962 to 1967 but increased 17 percent by 1970. In addition, food retailers report that local delivery costs to retail stores have increased substantially in recent years.

Retail meat prices usually show less month-to-month variability than live animal prices. Retailers try to hold to relatively steady monthly retail pricing patterns, resulting in short term changes in their margins. However, many retailers do special more meat cuts in some weeks than in others. Changes in prices for livestock tend to reflect short-run changes in supply-demand conditions.

Annual and seasonal changes in supplies and prices of cattle differ from those for hogs. Beef production has followed a nearly steadily rising trend. Hog production follows a recurring 4-year up-and-down cycle. Also, hog marketings vary seasonally within a year more than beef.

Farm-Wholesale and Wholesale-Retail Spreads for Pork

The farm-retail spread for pork is divided into the farm-wholesale spread and the wholesale-retail spread.

The farm-wholesale spread for pork covers approximate costs for marketing and slaughtering hogs, curing, smoking and processing the pork products, and shipping to major consuming centers. Since 1962, the farm-wholesale spread for pork has increased about 4 cents per retail pound. (fig. 7).

The wholesale-retail spread covers costs of local delivery to retail stores, and retailing. The wholesale-retail spread for pork rose nearly 6 cents per retail pound between 1962 and 1970, but sharp increases in 1966 and again in 1970 accounted for nearly all the rise.

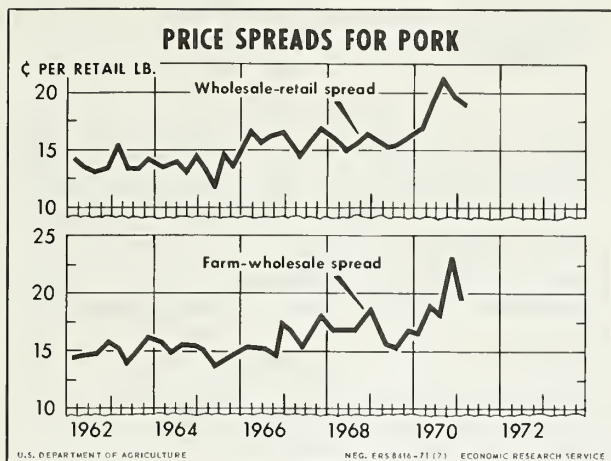


Figure 7

Farm-Carcass and Carcass-Retail Spreads for Beef

The components of the farm-retail spread for beef are somewhat different from those for pork. The farm-carcass spread for beef covers approximate costs of marketing and slaughtering operations, while the carcass-retail spread covers costs of breaking, transporting, local delivery, and retail cutting and packaging, as well as retailing costs.

The annual average farm-carcass spread for beef has fluctuated narrowly between 6 to 7 cents per retail pound since 1962. However, the carcass-retail spread for beef rose about 3 cents per retail pound in 1963, about 4 cents in 1969 and another 3 cents in 1970 to around 30 cents per retail pound (fig. 8).

Table 14.--Beef and pork price spreads and selected marketing costs, 1962-70

Year	Farm-retail price spreads		Hourly earnings		
	Beef	Pork	Meat	Meat	Food
			packing	processing	retailing
	Cents	Cents	Dollars	Dollars	Dollars
1962	26.5	28.7	2.77	2.55	1.83
1963	30.1	29.2	2.82	2.64	1.90
1964	30.3	29.1	2.91	2.72	1.98
1965	28.3	27.7	2.99	2.78	2.06
1966	30.1	31.8	3.09	2.88	2.13
1967	29.6	32.1	3.24	3.03	2.23
1968	29.9	32.9	3.45	3.22	2.38
1969	34.1	32.0	3.66	3.45	2.54
1970	37.1	38.5	3.98	3.65	2.70

	Prices of supplies and services bought by marketing firms			Rail freight rates for dressed meats	

	----- Index 1967=100 -----				
1962	96	100	84	120	
1963	95	99	86	117	
1964	96	98	88	113	
1965	97	99	91	104	
1966	99	99	95	100	
1967	100	100	100	100	
1968	100	99	106	103	
1969	104	99	113	107	
1970	108	108	120	117	

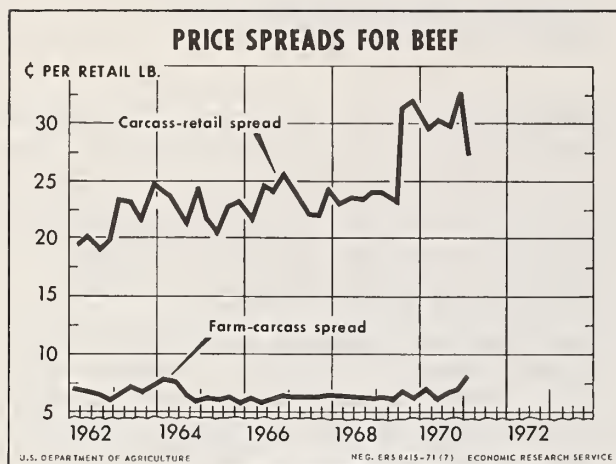


Figure 8

Factors Underlying Changing Price Spreads

The upward trend in meat price spreads largely reflects marketing firms' increases in costs. But quarterly variations within the year (tables 15 and 16) reflect, in part, the effects of price adjustments occasioned by seasonal changes in marketings of beef and pork and seasonal shifts in consumer demand. Additional fluctuations are due to lags in the timing of price adjustments at various market levels. The combined effects of all factors—increasing costs, supply and demand shifts, and lags in price response—are reflected in price spreads calculated for any individual month or quarter. Their individual effects are difficult to separate and analyze.

Table 15.--Quarterly price spreads for beef, 1962-71

Year	Carcass-retail spread					Annual average
	1st quarter	2nd quarter	3rd quarter	4th quarter		
<hr/>						
<div>----- Cents per retail pound -----</div>						
1962	19.5	20.1	19.2	19.9	19.9	
1963	23.3	23.1	21.7	24.7	23.2	
1964	24.0	23.5	21.2	24.1	23.2	
1965	21.9	20.2	22.7	23.7	22.1	
1966	21.4	24.6	24.2	25.5	23.9	
1967	24.1	22.4	22.1	24.3	23.2	
1968	23.0	23.4	23.4	24.0	23.5	
1969	24.0	23.3	31.3	32.0	27.6	
1970	29.6	30.1	29.7	32.5	30.4	
1971	27.5	28.6				
<hr/>						
<div>Farm-carcass spread</div>						
<hr/>						
<div>----- Cents per retail pound -----</div>						
1962	7.1	6.9	6.5	6.0	6.6	
1963	6.5	7.2	6.8	7.2	6.9	
1964	7.7	7.6	6.7	6.3	7.1	
1965	6.4	6.1	6.4	6.0	6.2	
1966	6.1	6.0	6.2	6.4	6.2	
1967	6.3	6.4	6.3	6.5	6.4	
1968	6.4	6.4	6.4	6.3	6.4	
1969	6.4	6.1	6.9	6.3	6.5	
1970	7.1	6.0	6.9	7.0	6.7	
1971	7.9	8.2				

For pork, the farm-retail spread divides about equally into the farm-wholesale, and wholesale-retail components. For beef, the farm-carass spread is about one-fifth of the total farm-retail spread. These proportions diverge because of differences in market levels where retailers make the bulk of their beef and pork purchases. Most purchases are made at the packer for beef, but at a further processing level for pork.

Retailers report that they are buying an increasing proportion of their beef as subprimals and fabricated

cuts. Also, there has been considerable shifting of beef slaughter operations toward the West and Southwest. The longer distance shipments to consuming centers, coupled with additional labor costs for breaking and cutting the beef before purchase by retailers, have increased the prices paid to packers by retailers for beef. These factors contribute to changes in packers' spreads and the spreads for shipping or retailing dressed beef that are not fully depicted in the widening carcass-retail spread. Additional studies are being made to measure the effects of these changes on the beef price spread.

Table 16.--Quarterly price spreads for pork, 1962-71

Year	Wholesale-retail spread				
	1st quarter	2nd quarter	3rd quarter	4th quarter	Annual average
	<u>Cents per retail pound</u>				
1962	14.2	13.6	13.1	13.3	13.6
1963	15.2	13.5	13.4	14.1	14.0
1964	13.6	13.9	13.0	14.3	13.7
1965	13.1	11.7	14.5	13.6	13.2
1966	16.3	15.6	16.3	16.5	16.1
1967	15.7	14.3	16.0	16.8	15.7
1968	16.0	15.1	15.6	16.4	15.7
1969	15.7	15.4	15.5	16.2	15.8
1970	17.1	19.4	21.0	19.8	19.3
1971	19.1	18.9			
	<u>Farm-wholesale spread</u>				
	<u>Cents per retail pound</u>				
1962	14.6	14.9	14.9	15.7	15.1
1963	15.4	14.2	14.9	16.1	15.2
1964	15.9	14.8	15.5	15.5	15.4
1965	15.0	13.8	14.4	14.7	14.5
1966	15.4	15.3	14.7	17.3	15.7
1967	16.7	15.5	16.7	18.0	16.7
1968	16.7	17.0	16.7	18.3	17.2
1969	17.0	15.9	15.3	16.7	16.2
1970	16.6	18.7	18.3	23.1	19.2
1971	19.6	20.0			

SELECTED NEW PUBLICATIONS

1. "U.S. Peach Industry--Structure, Trends, and Consumption Projection to 1980," U.S. Dept. of Agr., Agr. Res. Ser. and Econ. Res. Ser., AER-200, March 1971.

This first report of a two-part study dealing with the economics of the peach industry examines the industry's geographic structure, with special emphasis on peaches for canning. Recent trends in production, utilization, price, and consumption are analyzed for both fresh- and processing-market peaches. Inter-relationships between fresh- and processing-market prices in the major producing States are investigated, and supply-price relationships for canning-market peaches are developed for each producing region and the United States. The changing pattern of consumer demand for peach products is examined, and regional consumption requirements for canned peach products are projected to 1980.

2. "Cost of Storing and Handling Cotton at Public Storage Facilities 1969-70, with Projections for 1971-72," U.S. Dept. of Agr., Econ. Res. Ser., ERS-472, March 1971.

This report, based on a continuing study, analyzes cotton warehousing operating costs for 1969-70 and projects costs for 1971-72. Storage cost for 1969-70 increased about 7 percent over 1968-69. Cost for storing and handling combined increased slightly more than 4 percent. These costs are based on an analysis of accounting and operational data obtained by mail questionnaire from 102 warehouses and compresses. These sample firms represent about 35 percent of the total storage space approved in 1969-70 for storing and handling cotton owned or controlled by the Commodity Credit Corporation. Data from these firms also were used to develop cost estimates for 1971-72 based on projections of production, disappearance, and price levels. Estimates of competitive costs for 1971-72 were also developed based on projected disappearance, and on three levels of production of 10.0, 11.2, and 12.0 million bales.

3. "Estimated Cost of Storing and Handling Grain in Commercial Elevators, 1971-72," U.S. Dept. of Agr., Econ. Res. Ser., ERS-475, March 1971.

This report develops estimated handling and storage costs associated with operating commercial grain elevators in 1971-72. Cost estimates were based on projections of grain production, disappearance, and price levels since the base year, 1967-68. The 1971-72 projected average cost of 16.9 cents for storing a bushel of grain for 1 year is 20 percent above similar 1967-68 costs. A 10-percent increase in volume would lower the 1971-72 projected cost to 15.7 cents. A 10-percent reduction in volume would raise the 1971-72 projection to 18.4 cents. The long-run competitive storage rate, which provides the cost of replacing facilities at 1971-72 price levels, is estimated at 12 cents per bushel or 33 percent higher than the comparable cost in 1967-68.

4. "Storing and Handling Cotton in Public Facilities--An Evaluation of Cost Structures in 1964-65 and 1969-70," U.S. Dept. of Agr., Econ. Res. Ser., ERS-469, April 1971.

Between 1964-65 and 1969-70, average occupancy levels of warehousing space dropped approximately 58 percent. This resulted in an increase in storage costs of \$2.23 per bale per year. The cost structure for the handling functions also increased significantly during this period. The principal forces affecting both the storage and handling functions were declining volume and increasing cost of inputs. These conclusions are based on an analysis of accounting and operating data obtained by personal interviews from a sample of firms in the industry. The results of the analysis also indicated that regional differences existed in the cost structure associated with warehouses and compresses.

5. "A History of Sugar Marketing," U.S. Dept. of Agr., Econ. Res. Ser., AER-197, February 1971.

The present U.S. system of regulating the production, importation, and marketing of sugar is an outgrowth of Government regulation of the sugar trade dating from Colonial times. Similar systems have developed in most other countries, particularly those which import sugar. The U.S. Sugar Quota System has benefited domestic sugar producers by providing stable prices at favorable levels. These prices also have encouraged the production and use of substitute sweeteners, particularly corn sirup and dextrose in certain industries. However, sugar is, by far, the most widely used sweetener in the U.S. and is likely to retain this position.

6. "Developments in Marketing Spreads for Agricultural Products in 1970," U.S. Dept. of Agr., Econ. Res. Ser., ERS-14 (1971), May 1971.

Charges for marketing food products that originated on U.S. farms rose substantially more in 1970 than in any year during the 1960's. The spread between the retail cost and farm value of a market basket of farm foods rose 7 percent last year, compared with 1.9 percent for 1969 and 2.6 percent for 1968. Although marketing spreads for practically all products widened in 1970, major attention centered on pork and beef, which rose 20 percent and 9 percent, respectively. The marketing bill--total charges for transporting, processing, and distributing farm foods--totaled almost \$69 billion in 1970, 8 percent greater than in 1969. This increase was almost double the average increase during the past decade, due chiefly to higher labor costs. Marketing charges accounted for two-thirds of the \$102 billion spent by consumers for farm foods last year. The remaining third represented the payment or gross return that farmers received for farm food products.

Table 17.--Farm food products: Retail cost and farm value, April-June 1971, January-March 1971, April-June 1970, and 1957-59 average

Product 1/	Retail unit	Retail cost						Net farm value 2/					
		April- June 1971	January- March 1971	April- June 1970 3/	1957-59 June average	April-June 1971 from-	April- June 1971	January- March 1971	April- June 1970 3/	1957-59 June average	April-June 1971 from-	April- June 1971	Percentage change
						January- March 1971	April- June 1970						Percentage change
		Dollars	Dollars	Dollars	Dollars	Percent	Percent	Dollars	Dollars	Dollars	Dollars	Percent	Percent
Market basket		1244.44	1218.32	1226.56	982.65	2.1	1.5	476.77	3/465.85	484.19	387.87	2.3	-1.5
Meat products		367.68	361.50	379.46	285.05	1.7	-3.1	193.32	187.17	210.74	154.47	3.3	-8.3
Dairy products	Average quantities purchased per urban wage-earner and	224.37	222.52	217.30	173.33	.8	3.3	106.96	3/107.04	104.07	77.85	-1.1	2.8
Poultry and eggs		87.01	89.77	89.42	93.02	-3.1	-2.7	44.71	3/ 46.40	45.64	56.28	-3.6	-2.0
Bakery and cereal products 4/													
All ingredients	clerk-	191.44	189.04	182.55	148.40	1.3	4.9	36.46	36.12	35.40	30.55	.9	3.0
Grain	work-	---	---	---	---	---	---	26.90	3/ 26.29	25.40	23.40	2.3	5.9
All fruits and vegetables	house-	273.47	256.25	263.50	202.96	6.7	3.8	71.86	3/ 65.47	66.19	50.05	9.8	8.6
Fresh fruits and vegetables	holder	142.28	126.73	137.37	91.15	12.3	3.6	46.37	3/ 40.68	42.06	28.70	14.0	10.2
Fresh fruits	in	53.91	3/48.89	49.75	36.26	10.3	8.4	16.95	3/ 14.23	13.25	12.26	19.1	27.9
Fresh vegetables	1960-61	88.37	3/77.84	87.62	54.89	13.5	.9	29.42	3/ 26.45	28.81	16.44	11.2	2.1
Processed fruits and vegetables		131.19	129.52	126.13	111.81	1.3	4.0	25.49	3/ 25.79	24.13	21.35	-1.2	5.6
Fats and oils		44.13	43.43	40.41	37.56	1.6	9.2	13.44	13.64	12.31	11.19	-1.5	9.2
Miscellaneous products		56.34	55.81	53.92	42.33	1.0	4.5	10.02	10.01	9.84	7.48	.1	1.8
		Cents	Cents	Cents	Cents	Percent	Percent	Cents	Cents	Cents	Cents	Percent	Percent
Beef, Choice grade	Pound	104.9	100.3	99.4	74.4	4.6	5.5	68.1	64.9	63.3	51.3	4.9	7.6
Lamb, Choice grade	Pound	110.3	109.1	107.2	73.8	1.1	2.9	59.8	52.9	58.7	41.9	13.0	1.9
Pork	Pound	68.8	69.2	80.0	59.8	-6	-14.0	29.9	3/ 30.6	41.9	31.9	-2.3	-28.6
Butter	Pound	87.6	87.8	86.4	73.2	-2	1.4	60.7	3/ 63.0	62.3	52.6	-3.7	-2.6
Cheese, American process	Pound	52.7	52.0	50.3	32.3	1.3	4.8	23.1	22.8	22.0	14.2	1.3	5.0
Ice cream	gallon	84.7	85.4	84.1	84.2	-8	.7	28.5	29.1	28.2	21.0	-2.1	1.1
Milk, evaporated	14 3/4-cup can	19.6	19.3	18.5	14.5	1.6	5.9	9.4	9.0	9.1	6.2	4.4	3.3
Milk, fresh													
Home delivered	gallon	67.0	66.6	65.0	50.8	.6	3.1	29.6	29.5	28.5	21.9	.3	3.9
Sold in stores	gallon	59.0	58.3	57.2	46.6	1.2	3.1	29.6	29.5	28.5	21.9	.3	3.9
Chickens, frying, ready-to-cook ..	Pound	41.3	40.2	41.0	43.5	2.7	.7	19.5	18.5	18.7	24.4	5.4	4.3
Eggs, Grade A large	Dozen	51.3	56.7	54.1	56.2	-9.5	-5.2	29.0	32.9	31.1	36.1	-11.9	-6.8
Bread, white													
All ingredients	Pound	25.0	24.9	24.0	18.9	.4	4.2	3.6	3.4	3.4	3.0	5.9	5.9
Wheat	Pound	---	---	---	---	---	---	2.7	2.6	2.6	2.4	3.8	3.8
Bread, whole wheat	Pound	38.4	37.7	36.3	---	1.9	5.8	3.2	3.1	3.0	---	3.2	6.7
Cookies, sandwich	Pound	54.8	53.2	51.7	---	3.0	6.0	5.2	4.1	4.9	---	2.0	6.1
Corn flakes	12 ounces	34.3	34.1	31.5	24.5	-6	8.9	3.1	3.2	2.7	2.4	-3.1	14.8
Flour, white	5 pounds	60.3	59.4	59.0	53.3	1.5	2.2	21.6	20.9	20.5	18.8	3.3	5.4
Apples	Pound	24.2	21.7	22.4	16.1	11.5	8.0	7.0	3/ 6.4	5.5	5.0	9.4	27.3
Grapefruit	Each	17.6	14.2	16.4	10.7	23.9	7.3	5.1	3.0	4.8	2.7	70.0	6.2
Lemons	Pound	32.8	32.3	30.7	18.4	1.5	6.8	10.4	9.7	7.8	4.2	7.2	33.3
Oranges	Dozen	90.8	86.1	80.9	66.0	5.5	12.2	24.4	21.1	18.4	23.2	15.6	32.6
Cabbage	Pound	14.5	13.0	16.7	8.7	11.5	-13.2	5.3	3.8	5.7	2.4	39.5	-7.0
Carrots	Pound	21.6	17.3	16.9	14.5	24.9	27.8	9.2	5.3	4.9	3.7	73.6	87.8
Celery	Pound	18.4	17.8	23.0	15.3	3.4	-20.0	5.3	4.1	7.5	4.4	29.3	-29.3
Cucumbers	Pound	36.1	30.1	30.7	---	19.9	17.6	18.2	8.8	10.9	---	106.8	67.0
Lettuce	Head	32.3	30.6	28.0	22.6	5.6	15.4	8.9	3/ 13.4	7.8	6.0	-33.6	14.1
Onions	Pound	14.1	13.1	18.2	10.1	7.6	22.5	4.1	3.7	5.8	3.4	10.8	-29.3
Peppers, green	Pound	79.1	48.5	72.0	---	63.1	9.9	35.9	24.8	33.8	---	44.8	6.2
Potatoes	10 pounds	89.6	81.7	94.2	58.3	9.7	-4.9	23.7	20.5	29.3	17.8	15.6	-19.1
Tomatoes	Pound	50.4	45.6	46.4	30.1	10.5	8.6	19.5	21.2	16.4	10.6	-8.0	18.9
Peaches, canned	No. 2 1/2 can	36.7	36.3	34.7	34.3	1.1	5.8	6.5	6.5	5.9	6.1	0	10.2
Pears, canned	No. 2 1/2 can	52.9	52.5	48.5	---	.8	9.1	12.1	12.1	8.3	---	0	65.8
Beets, canned	No. 303 can	19.3	19.0	18.5	---	1.6	1.3	1.3	1.3	1.4	---	0	-7.1
Corn, canned	No. 303 can	24.7	24.8	24.3	17.8	-4.4	1.6	2.9	2.9	3.0	2.4	0	-3.3
Peas, canned	No. 303 can	26.2	26.0	25.0	21.0	.8	4.8	3.8	3.8	3.7	3.1	0	-2.7
Tomatoes, canned	No. 303 can	22.6	22.5	21.0	15.6	.4	7.6	3.1	3.1	3.2	2.3	0	-3.1
Orange juice, concentrate, frozen	6-ounce can	22.5	21.6	22.5	23.4	4.2	0	6.9	6.5	7.3	8.2	6.2	-5.5
French fried potatoes, frozen	9 ounces	16.3	16.4	16.5	---	-6	-1.2	2.6	2.5	2.9	---	4.0	-10.3
Peas, frozen	10 ounces	22.1	21.8	21.1	19.9	1.4	4.7	3.8	3.8	3.6	3.2	0	5.6
Beans, navy	Pound	21.5	20.3	19.0	16.3	5.9	13.2	12.9	10.5	6.7	6.9	22.9	92.5
Margarine	Pound	32.6	32.0	29.7	27.4	1.9	9.8	9.8	9.8	8.8	7.8	0	11.4
Peanut butter	12-ounce jar	49.2	49.5	47.4	41.4	-6	3.8	16.0	16.3	16.2	14.1	-1.8	-1.2
Salad and cooking oil	24-ounce bottle	62.7	61.2	56.4	---	2.5	11.2	16.2	16.7	14.4	---	-3.0	12.5
Vegetable shortening	3 pounds	96.2	94.6	88.0	90.4	1.7	9.3	34.4	34.8	31.2	28.2	-11.5	10.3
Sugar	5 pounds	67.8	67.2	64.2	54.5	.9	5.6	27.3	27.3	26.3	20.2	0	3.8
Spaghetti with sauce, canned	15 1/2-ounce can	19.1	19.1	18.4	---	0	3.8	2.1	2.1	2.1	---	0	---

^{1/} Product groups include more items than those listed in this table. For example, in addition to the products listed--Choice beef, lamb, and pork (major products except lard)--the meat products group includes lower grades of beef, the minor edible pork products, and veal.

2/ Gross farm value adjusted to exclude imputed value of byproducts obtained in processing.

3/ Many retail cost and farm value figures have been revised for April-June 1970, figures in other columns revised as indicated.

5/ Many retail cost and farm value figures have been revised to April, June 1970, figures.
 5/ For the bakery products group and the individual wheat products, the net farm value is based on the market price of wheat received by farmers plus the cost of the marketing certificate to millers. This cost equals the value of the domestic marketing certificate received by farmers complying fully with the Wheat Program.

Table 18.--Farm food products: Farm-retail spread and farmer's share of the retail cost, April-June 1971, January-March 1971, April-June 1970 and 1957-59 average

Product 1/	Retail unit	Farm-retail spread 2/						Farmer's share			
		April-June 1971	January-March 1971	April-June 1970	1957-59 average	Percentage change from April-June 1971		April-June 1971	January-March 1971	April-June 1970	1957-59 average
						Jan.-Mar. 1971	April-June 1970				
		Dollars	Dollars	Dollars	Dollars	Percent	Percent	Percent	Percent	Percent	Percent
Market basket		767.67	3/752.47	742.37	594.78	2.0	3.4	38	38	39	39
Meat products		174.36	174.33	168.72	130.58	4/	3.3	53	52	3/56	54
Dairy products	Average quantities purchased per urban wage-earner and clerical-worker household	117.41	3/115.48	113.23	95.48	1.7	3.7	48	48	48	45
Poultry and eggs		42.30	3/43.37	43.78	36.74	-2.5	-3.4	51	52	51	61
Bakery and cereal products 5/											
All ingredients		154.98	152.92	147.15	117.85	1.3	5.3	19	19	19	21
Grain		---	---	---	---	---	---	14	14	14	16
All fruits and vegetables		201.61	3/190.78	197.31	152.91	5.7	2.2	26	26	25	25
Fresh fruits and vegetables ..		95.91	3/86.05	95.31	62.45	11.5	.6	33	32	31	31
Fresh fruits		36.96	3/34.66	36.50	24.00	6.6	1.3	31	29	27	34
Fresh vegetables	1960-61	58.95	3/51.39	58.81	38.45	14.7	.2	33	34	33	30
Processed fruits and vegetables		105.70	3/104.73	102.00	90.46	.9	3.6	19	19	19	19
Fats and oils		30.69	29.79	28.10	26.37	3.0	9.2	30	31	30	30
Miscellaneous products		46.32	45.80	44.08	38.45	1.1	5.1	18	18	18	18
		Cents	Cents	Cents	Cents	Percent	Percent	Percent	Percent	Percent	Percent
Beef, Choice grade	Pound	36.8	35.4	36.1	26.1	4.0	1.9	65	65	64	66
Lamb, Choice grade	Pound	50.5	3/56.2	48.5	31.9	-10.1	4.1	54	48	55	57
Pork	Pound	38.9	3/38.6	38.1	28.0	.8	2.1	43	44	52	53
Butter	Pound	26.9	3/24.8	24.1	20.6	8.5	11.6	69	72	72	72
Cheese, American process	3/4-pound	29.6	29.2	28.3	18.1	1.4	4.6	44	44	3/44	44
Ice cream	gallon	56.2	56.3	55.9	63.2	-2	.5	34	34	3/34	25
Milk, evaporated	14 1/2-ounce can	10.2	10.3	9.4	8.3	-1.0	8.5	48	47	49	43
Milk, fresh											
Home delivered	1/2 gallon	37.4	37.1	36.5	28.9	.8	2.5	44	44	44	43
Sold in stores	3/2 gallon	29.4	28.8	28.7	24.7	2.1	2.4	50	51	50	47
Chickens, frying, ready-to-cook ..	Pound	21.8	21.7	22.3	19.1	.5	-2.2	47	46	46	56
Eggs, Grade A large	Dozen	22.3	23.8	23.0	20.1	-6.3	-3.0	57	58	57	64
Bread, white											
All ingredients	Pound	21.4	21.5	20.6	15.9	-.5	3.9	14	14	14	16
Wheat	Pound	---	---	---	---	---	---	11	10	11	13
Bread, whole wheat	Pound	35.2	34.6	33.3	---	1.7	5.7	8	8	9	---
Cookies, sandwich	Pound	49.6	48.1	46.8	---	3.1	6.0	9	10	9	---
Corn flakes	12 ounces	31.2	30.9	28.8	22.1	1.0	8.3	9	9	9	10
Flour, white	5 pounds	38.7	38.5	38.5	34.5	.5	.5	36	35	35	35
Apples	Pound	17.2	3/15.3	16.9	11.1	12.4	1.8	29	3/29	25	31
Grapefruit	Each	12.5	11.2	11.6	8.0	11.6	7.8	29	21	29	25
Lemons	Pound	22.4	22.6	22.9	14.2	-.9	-2.2	32	30	25	23
Oranges	Dozen	66.4	65.0	62.5	42.8	2.2	6.2	27	25	23	35
Cabbage	Pound	9.2	9.2	11.0	6.3	---	-16.4	37	29	34	28
Carrots	Pound	12.4	12.0	12.0	10.8	3.3	3.3	43	31	29	26
Celery	Pound	13.1	13.7	15.5	10.9	-4.4	-15.5	29	23	33	29
Cucumbers	Pound	17.9	3/21.3	19.8	---	-16.0	-9.6	50	29	36	---
Lettuce	Head	23.4	3/17.2	20.2	16.6	36.0	15.8	28	3/29	44	28
Onions	Pound	10.0	9.4	12.4	6.7	6.4	-19.4	28	26	32	34
Peppers, green	Pound	43.2	23.7	38.2	---	82.3	13.1	45	51	3/51	---
Potatoes	10 pounds	65.9	61.2	64.9	40.5	7.7	1.5	26	25	3/31	---
Tomatoes	Pound	30.9	24.4	30.0	19.5	26.6	3.0	39	46	35	35
Peaches, canned	No. 2 1/2 can	30.2	29.8	28.8	28.2	1.3	4.9	18	18	17	18
Pears, canned	No. 2 1/2 can	40.8	40.4	40.2	---	1.0	1.5	23	23	17	---
Beets, canned	No. 303 can	18.0	17.7	17.1	---	1.7	5.3	7	7	8	---
Corn, canned	No. 303 can	21.8	21.9	21.3	15.4	-.5	2.3	12	12	12	13
Peas, canned	No. 303 can	22.4	22.2	21.3	17.9	.9	5.2	15	15	15	15
Tomatoes, canned	No. 303 can	19.5	19.4	17.8	13.3	.5	9.6	14	14	15	15
Orange juice, concentrate, frozen	6-ounce can	15.6	15.1	15.2	15.2	3.3	2.6	31	30	3/32	35
French fried potatoes, frozen ...	9 ounces	13.7	13.9	13.6	---	-1.4	.7	16	15	3/18	---
Peas, frozen	10 ounces	18.3	18.0	17.5	16.7	1.7	4.6	17	17	17	16
Beans, navy	Pound	8.6	9.8	12.3	9.4	-12.2	-30.1	60	52	35	42
Margarine	Pound	22.8	22.2	20.9	19.6	2.7	9.1	30	31	30	28
Peanut butter	12-ounce jar	33.2	33.2	31.2	27.3	---	6.4	33	33	34	34
Salad and cooking oil	24 oz. bottle	46.5	44.5	42.0	---	4.5	10.7	26	27	26	---
Vegetable shortening	3 pounds	61.8	59.8	56.8	62.2	3.3	8.8	36	37	35	31
Sugar	5 pounds	40.5	39.9	37.9	34.3	1.5	6.9	40	41	3/41	37
Spaghetti with sauce, canned	15 1/2-ounce can	17.0	17.0	16.3	---	---	4.3	11	11	11	---

1/ Product groups include more items than those listed in this table. For example, in addition to the products listed--Choice beef, lamb, and pork (major products except lard)--the meat products group includes lower grades of beef, the minor edible pork products, and veal.

2/ The farm-retail spread is the difference between the retail cost and the net farm value shown in table on opposite page.

3/ Many farm-retail spread figures have been revised for April-June 1970, figures in other columns revised as indicated.

4/ Less than 0.05 percent

5/ For the bakery products group and the individual wheat products, the farmer's share is based on the market price of wheat received by farmers plus the cost of the marketing certificate to millers. This cost is returned to farmers complying with the Wheat Program.

Table 19.--Farm food products: Retail cost, farm value of equivalent quantities sold by producers, byproduct allowance, farm-retail spread, and farmer's share of retail cost, April-June 1971.

Product 1/	Farm equivalent	Retail unit	Retail cost	Cross farm value	Byproduct allowance	Net farm value	Farm-retail spread	Farmer's share
			Dollars	Dollars	Dollars	Dollars	Dollars	Percent
Market basket			1,244.44	---	---	476.77	767.67	38
Meat products			367.68	---	---	193.32	174.36	53
Dairy products			224.37	---	---	106.96	117.41	48
Poultry and eggs			87.01	---	---	44.71	42.30	51
Bakery and cereal products 2/	Farm produce equivalent to products bought per urban wage-earner and clerical-worker household in 1960-61	Average quantities purchased per urban wage-earner and clerical-worker household in 1960-61						
All ingredients		per urban wage-earner	191.44	---	---	36.46	154.98	19
Crain		---	---	33.15	6.25	26.90	---	14
All fruits and vegetables		and	273.47	---	---	71.86	201.61	26
Fresh fruits and vegetables		clerical-	142.28	---	---	46.37	95.91	33
Fresh fruits		worker	53.91	---	---	16.95	36.96	31
Fresh vegetables		household	88.37	---	---	29.42	58.95	33
Processed fruits and vegetables		in						
Fats and oils		1960-61	131.19	---	---	25.49	105.70	19
Miscellaneous products			44.13	32.97	19.53	13.44	30.69	30
			56.34	---	---	10.02	46.32	18
			Cents	Cents	Cents	Cents	Cents	Percent
Beef, Choice grade	2.25 lb. Choice grade cattle	Pound	104.9	72.8	4.7	68.1	36.8	65
Lamb, Choice grade	2.43 lb. lamb	Pound	110.3	66.1	6.3	59.8	50.5	54
Pork	2.00 lb. hogs	Pound	68.8	32.5	2.6	29.9	38.9	43
Butter	Cream and whole milk	Pound	87.6	110.9	50.2	60.7	26.9	69
Cheese, American process	Milk for American cheese	$\frac{1}{2}$ pound	52.7	23.9	.8	23.1	29.6	44
Ice cream	Cream, milk, and sugar	gallon	84.7	---	---	28.5	56.2	34
Milk, evaporated	Milk for evaporating	$1\frac{1}{2}$ -ounce can	19.6	9.6	.2	9.4	10.2	48
Milk, fresh								
Home delivered	4.39 lb. Class I milk	$\frac{1}{2}$ gallon	67.0	---	---	29.6	37.4	44
Sold in stores	4.39 lb. Class I milk	$\frac{1}{2}$ gallon	59.0	---	---	29.6	29.4	50
Chickens, frying, ready-to-cook	1.37 lb. broiler	Pound	41.3	---	---	19.5	21.8	47
Eggs, Grade A large	1.03 dozen	Dozen	51.3	---	---	29.0	22.3	57
Bread, white								
All ingredients	Wheat and other ingredients	Pound	25.0	---	---	3.6	21.4	14
Wheat .....	.877 lb. wheat	Pound	---	3.1	.4	2.7	---	11
Bread, whole wheat .....	.618 lb. wheat	Pound	38.4	---	---	3.2	35.2	8
Cookies, sandwich .....	.528 lb. wheat	Pound	54.8	---	---	5.2	49.6	9
Corn flakes	2.87 lb. yellow corn	12 ounces	34.3	$\frac{4}{7}$.3	4.2	3.1	31.2	9
Flour, white	6.8 lb. wheat	5 pounds	60.3	24.8	3.2	21.6	38.7	36
Apples	1.04 lb. apples	Pound	24.2	---	---	7.0	17.2	29
Crapefruit	1.03 grapefruit	Each	17.6	---	---	5.1	12.5	29
Lemons	1.04 lb. lemons	Pound	32.8	---	---	10.4	22.4	32
Oranges	1.03 doz. oranges	Dozen	90.8	---	---	24.4	66.4	27
Cabbage	1.08 lb. cabbage	Pound	14.5	---	---	5.3	9.2	37
Carrots	1.03 lb. carrots	Pound	21.6	---	---	9.2	12.4	43
Celery	1.08 lb. celery	Pound	18.4	---	---	5.3	13.1	29
Cucumbers	1.09 lb. cucumbers	Pound	36.1	---	---	18.2	17.9	50
Lettuce	1.88 lb. lettuce	Head	32.3	---	---	8.9	23.4	28
Onions	1.06 lb. onions	Pound	14.1	---	---	4.1	10.0	29
Peppers, green	1.09 lb. peppers	Pound	79.1	---	---	35.9	43.2	45
Potatoes	10.42 lb. potatoes	10 pounds	89.6	---	---	23.7	65.9	26
Tomatoes	1.18 lb. tomatoes	Pound	50.4	---	---	19.5	30.9	39
Peaches, canned	1.60 lb. Calif. cling peaches	No. $2\frac{1}{2}$ can	36.7	---	---	6.5	30.2	18
Pears, canned	1.85 lb. pears for canning	No. $2\frac{1}{2}$ can	52.9	---	---	12.1	40.8	23
Beets, canned	1.24 lb. beets for canning	No. 303 can	19.3	---	---	1.3	18.0	7
Corn, canned	2.495 lb. sweet corn	No. 303 can	24.7	---	---	2.9	21.8	12
Peas, canned .....	.69 lb. peas for canning	No. 303 can	26.2	---	---	3.8	22.4	15
Tomatoes, canned	1.84 lb. tomatoes for canning	No. 303 can	22.6	---	---	3.1	19.5	14
Orange juice, concentrate, frozen ..	3.60 lb. oranges	6-ounce can	22.5	---	---	6.9	15.6	31
French fried potatoes, frozen	1.38 lb. potatoes	9 ounces	16.3	---	---	2.6	13.7	16
Peas, frozen .....	.70 lb. peas for freezing	10 ounces	22.1	---	---	3.8	18.3	17
Beans, navy	1.00 lb. Mich. dry beans	Pound	21.5	---	---	12.9	8.6	60
Margarine	Soybeans, cottonseed, and milk	Pound	32.6	23.9	14.1	9.8	22.8	30
Peanut butter	1.33 lb. peanuts	12-ounce jar	49.2	---	---	16.0	33.2	33
Salad and cooking oil	Soybeans, cottonseed, and corn	24-oz. bottle	62.7	54.6	38.4	16.2	46.5	26
Vegetable shortening	Soybeans and cottonseed	3 pounds	96.2	84.7	50.3	34.4	61.8	36
Sugar	Sugar beets and cane	5 pounds	67.8	29.1	1.8	$\frac{2}{2}$ 27.3	40.5	40
Spaghetti with sauce, canned	Wheat, tomatoes, cheese, sugar	$1\frac{1}{2}$ -ounce can	19.1	---	---	2.1	17.0	11

1/ Product groups include more items than those listed in this table. For example, in addition to the products listed--Choice beef, lamb, and pork (major products except lard)--the meat products group includes lower grades of beef, the minor edible pork products, and veal.

2/ Cross farm value adjusted to exclude imputed values of byproducts obtained in processing.

3/ For the bakery products group and the individual wheat products, gross farm value, byproducts allowance, net farm value, and farmer's share are based on the market price of wheat received by farmers plus the cost of the marketing certificate to millers. This cost is returned to farmers complying with the Wheat Program.

4/ Based on market price of corn received by farmers; no allowance made for price support payment received by farmers who comply with Federal Feed Grain Program.

5/ Net farm value adjusted for Government payments to producers was 31.1 cents, farm-retail spread adjusted for Government processor tax was 37.8 cents, farmer's share of retail cost based on adjusted farm value was 46 percent.

UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON, D. C. 20250

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF
AGRICULTURE



NOTICE: If you no longer need this publication, check here ☐
return this sheet, and your name will be dropped from the mailing list.

If your address should be changed, write the new address on this sheet and
return the whole sheet to:

Automated Mailing List Section
Office of Plant and Operations
U.S. Department of Agriculture
Washington, D.C. 20250

MTS-182

AUGUST 1971